

Public Utilities

FORTNIGHTLY



Volume 60 No. 11

November 21, 1957

THE CRISIS IN BOND FINANCING

By Fergus J. McDiarmid

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Energy—Its Use and Abuse

By William R. Connole

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Engineers as Regulatory Commissioners

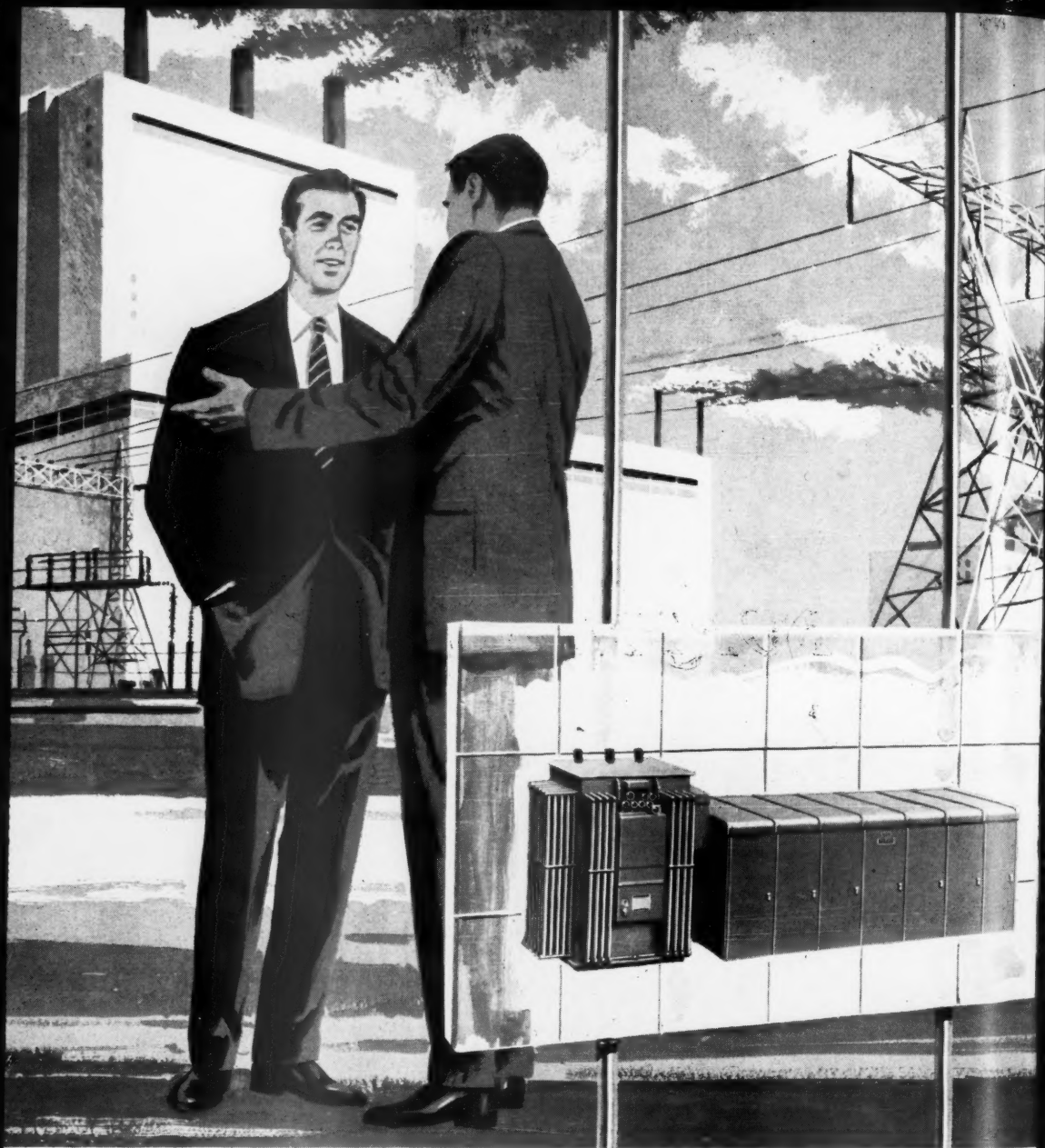
Part II.

By Lincoln Smith

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The Proposed FPC Tax Accounting Rule





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to your power distribution system when
you buy factory-built unit substations**

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Editorial Consultant • HENRY C. SPURR

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Subscription: Address correspondence to PUBLIC
UTILITIES FORTNIGHTLY, circulation department,
332 Pennsylvania Building, Washington 4, D. C.
Allow one month for change of address.

Single copies \$1.00. Annual subscription price
(26 issues a year): United States and posses-
sions, \$15.00; Pan American countries, \$15.00;
Canada, \$16.00; all other countries, \$17.50.

Entered as second-class matter April 29, 1915,
under the Act of March 3, 1879, at the Post Office
at Baltimore, Md., December 31, 1936. Copy-
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Printed in U. S. A.

Public Utilities

FORTNIGHTLY

VOLUME 60

NOVEMBER 21, 1957

NUMBER 11



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Within the framework of our free society the only way to
relate savings to capital demand has been through the
interest rate.

Energy—Its Use and Abuse

Hon. William R. Connole 836

A broad picture of regulatory and economic problems
involved in the conservation and exploitation of energy,
with special reference to natural gas.

Engineers as Regulatory Commissioners.

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Is it of advantage to have an engineer on the commission
itself, or does the engineer function more effectively as
a specialized staff official?

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PUBLIC UTILITIES REPORTS, INC., PUBLISHERS

Executive, Editorial &

Advertising Offices 332 PENNSYLVANIA BLDG., WASHINGTON 4, D. C.

Publication Office CANDLER BUILDING, BALTIMORE 2, Md.

Advertising Representatives:

New York 6: Robert S. Farley, 111 Broadway, COrtland 7-6638

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Philo Plant of Ohio Power Company on American Gas & Electric System. Stack in front is for the new Supercritical Unit.

B&W's Universal Pressure Steam Generator

Helps Philo Plant Open the Way to New Economies in Steam-Electric Generation

Generating history is being made at the Philo Plant of the Ohio Power Company on the American Gas & Electric System. Here, America's first commercial supercritical pressure steam-electric unit is in operation, probing the frontiers for new economies in the production of energy.

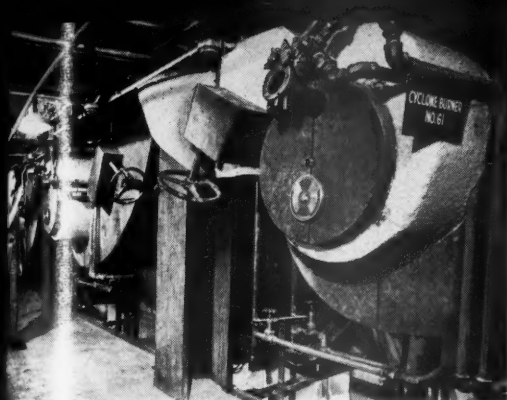
A Symbol of the Vision and progressiveness of America's public utilities and their suppliers, Philo is a landmark in engineering history. It is the result of years of engineering, research, and development that solved the many problems which had stood in the way

of greater plant efficiency that comes with the highest possible combination of pressure and temperature.

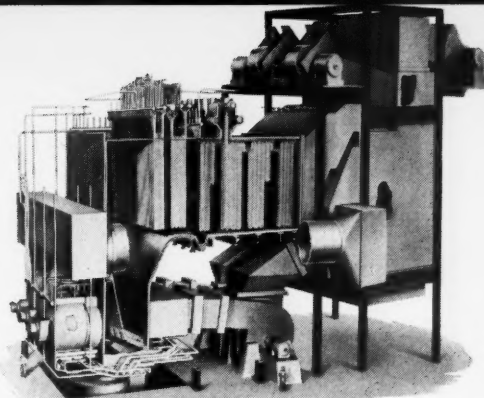
The Problems Solved included the very difficult problems of feedwater chemistry, of heat transfer and control of internal deposits, metallurgy for higher temperatures combined with higher pressures, and development of control and operating techniques.

Philo's Supercritical Unit, with a turbo-generator operating at 4500 psi and 1150F, is producing 120,000 kw, in the same space and using 45 per cent less fuel per kw-hr than the 40,000 kw unit it replaced.

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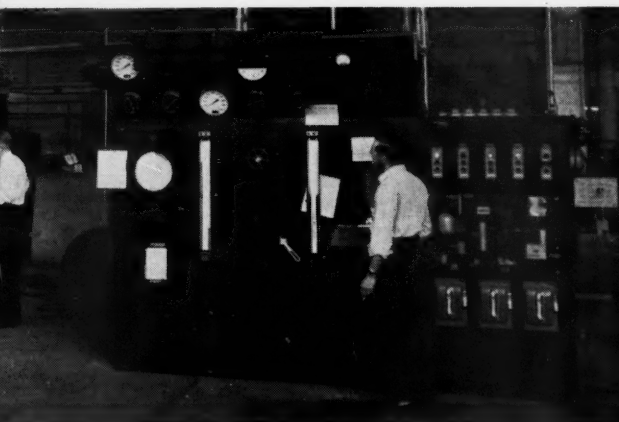


B&W Cyclone Furnaces assure rapid and complete combustion with minimum fly ash discharge and maintenance.



B&W Universal Pressure Steam Generator at Philo Plant employs two stages of reheat, the first at 1150 psi and 1050F, and the second at 165 psi and 1000F.

B&W engineers solved the problems posed by the combination of the highest possible pressure and temperature. This large pilot unit was used to study fluid flow, heat transfer, feedwater chemistry, and control characteristics.



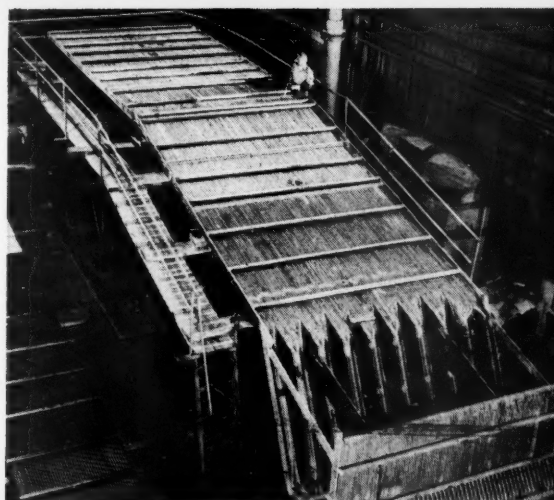
Two More B&W Universal Pressure Steam Generators are now being built for The American Gas & Electric System. Together these will produce 900,000 horsepower enough to supply residential power for a city of 10,000. Like Philo, they will continue to push forward this new frontier in steam generation. Nearly a Century of B&W leadership in steam generation stands behind these achievements. The Babcock & Wilcox Company, Boiler Division, 161 42nd Street, New York 17, N. Y.

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BOILER DIVISION



Shop assembly of secondary front wall. Pre-assembly of many components for the Universal Pressure Steam Generator greatly speeded field erection.

Pages with the Editors

THE recent combination of continued inflation, stock market slumps, and world-wide jitters over what the Russians are up to seems to have set off another "agonizing reappraisal" of our American economy by some of our fair weather friends who have always been rather critical of it anyhow. When our automotive and railroad industries announce periodic layoffs of employees, or when our aircraft industry announces cancellation of certain projects, we can always depend on some of our British and French periodicals, particularly of leftward leanings, to develop a bad case of the shakes.

THE London *Economist* ponders aloud about whether America is about to have another depression. Statesmen and economists in western Europe nod their heads knowingly and recall that America always had an up-and-down economy, either booming or busting. In Moscow, of course, such news calls for extra vodka and some patronizing lectures on the defects of bourgeois Capitalism in *Pravda*. Although the philosophical patron of Moscow, Karl Marx, has been, by and large, about the worst prophet among men of his calling, any signs of difficulty in the American economy are hailed as the beginning of that long-predicted and often-postponed postwar depression in the United States.

BUT a good deal of folklore about the American economy has been developing ever since economic depressions became noticeable enough to distinguish them from any other kind of ordinary hard times through which our forefathers passed as a matter of routine. In 1900 unemployment averaged 8.7 per cent of all nonfarm employees. It dropped back until the baby depression of 1904 pulled it up to 7.9 per cent. Three years later, during the so-called "railroad depression" in 1908, 12.5 per cent or one-eighth of all nonfarm workers were jobless. Then



FERGUS J. MCDIARMID

unemployment rocked along between 7 and 9 per cent until 1914 when it rose to 12 per cent. In 1915 it hit 14 per cent. World War I knocked it down to 2 per cent, and the nation enjoyed the "silk shirt" prosperity which lasted, except for a brief recession in 1921, until the Great Depression of 1930. During this period, over a third of the nonfarm working force (35 per cent) were out of work. In the fifteen years from 1942 to 1956, unemployment has ranged from 1.6 per cent (1944) to 7.3 per cent (1949). Early this year it was less than 4 per cent.

AND so for over a half-century, with the exception of the depression years of the early thirties, unemployment in the United States has averaged less than 7 per cent. If there are other nations abroad or other economic systems which can match that system of economic stability, they still have to put in their claim.

OF course, the pressure of inflation on the normal financial patterns of American industry has been complicated by the more recent "tight money" controls. And the public utility industries, with their constant need for more and more funds to expand plant investment, are faced with some aggravating problems to hold up

"WHAT D'YOU SEE, MISTER?"

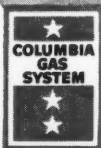
*The future, son! New homes, new towns, new
industry . . . in the Heartland of America!*

★ ★ ★

The natural gas pipeline surveyor is a symbol of progress . . . of residential and industrial growth in that part of America's Heartland served by Columbia Gas System.

In Ohio, Pennsylvania, West Virginia, Kentucky, Virginia, Maryland, and southern New York, the demand for natural gas keeps mounting rapidly. Ten years ago, Columbia delivered 231 billion cubic feet of gas to the homes, businesses, and industries it serves. Last year, that figure rose to 605 billion. In 1961, it is estimated that the System's customers will require 845 billion cubic feet annually.

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their end of their public service obligation. But on the whole, the ability of American industry to bounce back to keep "business as usual" a true and honest description of what goes on, while at the same time maintaining full employment and high living standards for all, speaks for itself. Both our friends and our enemies in foreign parts will have to admit that *they* never had it so good.

ONE of the problems posed by the fluctuating interest rate of public utilities is the maintenance of stable bond financing. Large institutional investors who prefer this form of commitment of large-scale funds, do not like the reservation of "call" or other conditions which tend to interfere with the firm commitment of such funds.

THE leading article in this issue by FERGUS J. MCDIARMID, vice president of The Lincoln National Life Insurance Company, gives the reasons why we face a real crisis in preserving relatively stable money. His article stresses the equity involved in call premiums with relation to public utility bond financing. He makes the point that within the framework of our free enterprise system, the only way to relate capital to capital demand is through the interest rate. While this process involves dislocation from time to time, deviation from an orderly system is likely to change the economic structure over the long run. Mr. MCDIARMID, who is well known for his previous thoughtful articles on finance matters in this publication, is a graduate of the University of Toronto, and has spent his entire career with The Lincoln National Life Insurance Company, specializing in actuarial and public utility investment responsibilities.

* * * *

THE ages of man are known by the principal materials that support them: the Stone Age, the Bronze Age, the Iron Age. Our age will probably be known as the Steel Age, but we live also in the era of fossil fuel energy, the driving force of our complicated steel machines. Beginning on page 836, COMMISSIONER WILLIAM R. CONNOLE, associate member of the Fed-



WILLIAM R. CONNOLE

eral Power Commission, gives us a broad picture of regulatory and economic problems involved in the conservation and exploitation of energy, with special reference to natural gas. COMMISSIONER CONNOLE of Naugatuck, Connecticut, a graduate of Georgetown University (BA and LLB) and Trinity College (MA), Hartford, Connecticut, was an Army Air Force meteorologist during World War II. He served as counsel for the Connecticut Public Utilities Commission from 1950 to 1955, at which time he was appointed by President Eisenhower to the FPC. This article is a substantial restatement of an address before the recent annual convention of the Independent Natural Gas Association at Houston, Texas.

* * * *

BEGINNING on page 846 is the second instalment of an analytic discussion of an important organization problem involved in the make-up of our state commissions. DR. LINCOLN SMITH, who has made an extensive study of the professional background and organization of our state regulatory commissions, has taken up the question of the engineer's rôle in a modern state regulatory commission. Is it of advantage to have an engineer on the commission itself?

THE next number of this magazine will be out December 5th.

The Editors

One of the great threats to the mythical Jason and the Argonauts as they sought the Golden Fleece was passage of their ship between the forbidding rock of Scylla and the whirlpool of Charybdis. With steady hands Jason guided the *Argo* safely through the treacherous channel. To this day, Scylla and Charybdis remain a symbol of perilous hazard.



WHEN ENDURANCE COUNTS

Overcoming the perils of Scylla and Charybdis, Jason and the Argonauts demonstrated great endurance in the face of severe destructive elements. Another—and more modern—demonstration of great endurance is Kerite Cable. Under every manner of adverse condition, throughout the world, Kerite

Cable stands steadfast against all the elements which would destroy its efficiency. Kerite Cables, in perfect operating condition after 40 or more years, in hazardous original installations, is the rule, rather than the exception. The world over, the Kerite name is recognized as a symbol of *durability*.

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Coming IN THE NEXT ISSUE

(December 5, 1957, issue)



LIABILITY INSURANCE FOR THE NUCLEAR ENERGY HAZARD

Richard H. Butler, secretary of Travelers Insurance Company, is an authority on the subject of liability insurance risk. This is a subject which has given a great deal of difficulty to legislators and public utility management people, as well as insurance company officials with respect to the hazard of nuclear energy for peacetime usage. This article explains the general principles of the law relating to this new type of insurance, and it should be of interest to those many companies which in one way or another will be involved some time in the production or use of atomic energy. The law is rather complicated, and the fine print in the policies will probably be even more so. The next problem will probably involve insurance for those rising or following interspatial Sputniks.

TELLING THE INDUSTRY'S STORY TO CONGRESS

This is an unusual type of article which should be of considerable interest to Congressmen and business officials and associations which are represented at congressional hearings. The recent television views of special congressional committee and subcommittee hearings on such diverse matters as internal security and labor racketeering should make this worth-while and informative reading. The author is Thomas Ward Miles, who has made a virtual career of congressional committee hearings and knows exactly what to do about them. This article by Mr. Miles should not be missed by anybody who has been called, or feels that he is likely to be called, to testify before a congressional group.

WHAT'S HAPPENING TO TVA?

This article has been prepared to promote better understanding of TVA, what it is, how it has grown, the extent and nature of the interest of the nation's taxpayers in TVA, and why certain changes are now being proposed which have such an impact on this interest as to be a cause for everyone's concern. These changes emphasize the need for serious consideration of the future of TVA by Congress, so that a sound solution of the TVA problem can be reached in the best interests of the people of the country. The author is Everett L. Palmer, vice president of the Pennsylvania Power & Light Company.



Also . . . Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.

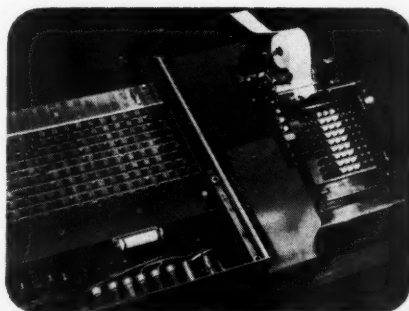
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... if rates are realistically upped to bear higher interest, utilities must offer to get new money for sorely needed expansion. Public service commissions* realize the increased cost of new financing and will listen to applications for rate increases with this as one of the bases. BUT, to be sure all facts and figures will stand scrutiny, accurate RATE ANALYSES covering company experience over a *sufficient* period of time are a MUST.

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"There never was in the world two opinions alike."

—MONTAIGNE

EDDIE RICKENBACKER
*Chairman of the board,
Eastern Air Lines.*

"Politics has replaced the economic law of supply and demand."

NORMAN R. SUTHERLAND
*President, Pacific Gas and
Electric Company.*

"Without economic freedom no man, even though he has all the other human rights, can be free."

LLOYD A. DIXON, JR.
*Vice president in charge of meter
and valve division, Rockwell
Manufacturing Company.*

"When a company has confidence in its ability to produce quality products economically, then it logically follows that this company will make or break on its ability to sell efficiently."

MARCUS NADLER
Economist.

"Prosperity generated by inflation is an economic disease which merely gives the economy the appearance of health. If permitted to run its course, the consequences of inflation will be serious and widespread."

FRED A. SEATON
Secretary of Interior.

"We have to put every power dollar available from every public and private source to work to build the power plants America will need twenty years from now. Otherwise the job can't be done. It's just that simple."

ROBERT V. FLEMING
*Chairman of the board,
Riggs National Bank.*

"Since 1933, it has been dramatically apparent to me . . . the relationship between the government and banking and business was to be one of the most important factors in the management of all business enterprises."

PHILIP M. TALBOTT
*President, Chamber of Commerce
of the United States.*

"Federal spending is perhaps the most overriding domestic issue of the hour. The cost of government must come down if taxes are to come down. Taxes must come down or we will indeed reach the point of no return."

FRANCIS G. WINSPEAR
President, Premier Steel Mills Ltd.

"There may be some tendency for Canadians to view the difficulties of Canadian-American trade relations with too much pessimism. . . . In fact, the volume of trade between Canada and the U. S. is by far the greatest between any two nations in the world and that trade, on the whole, is carried on effectively and harmoniously."

L. L. COLBERT
President, Chrysler Corporation.

"The current variety of inflation seems to differ in some ways from any we have known in the past, but it is still true that the fundamental way to curb inflation is to increase the efficiency with which the country's needs for goods and services can be supplied. One of the greatest contributions that can be made by key industries toward the slowing down of inflation is to invest in more efficient tools of production."



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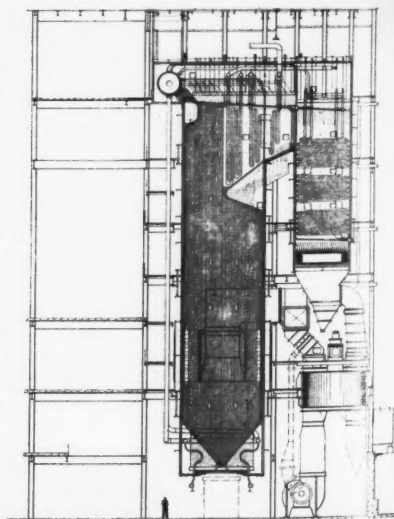
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GALLATIN
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MITCHELL
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YORKTOWN

GULF COAST

New Gulf Coast Steam Plant

**GOES
INTO
SERVICE**

The C-E Unit shown at the right is now in service at the Gulf Coast Steam Plant. It is of the radiant-reheat type with a reheater section located between the primary and secondary superheater surfaces. An economizer section is located below the rear superheater section and regenerative type air heaters follow the economizer surface. This unit is designed to supply steam at a throttle pressure of 1800 psig with a primary steam temperature of 1000 F, reheated to 1000 F. It is fired by natural gas using tilting, tangential burners.





Mississippi Power Company made a substantial addition to their system recently when Unit No. 4 of their new Gulf Coast Plant was placed in service.

Located midway between Gulfport and Biloxi about three miles above the Gulf of Mexico, this fine new plant extends the system to meet growing demands for service, both industrial and residential, in the Gulf area.

Added to their present stations, Plant Eaton at Hattiesburg and Plant Sweatt at Meridian, the Gulf Coast Plant raises the combined system capacity to about 225,000 kilowatts.

Steam for the new 75,000 KW turbine-generator at Gulf Coast is supplied by a C-E Steam Generating Unit, a cross sectional elevation and brief description of which appear on the opposite page.

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The Inside Story...

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The anti-TB methods financed by Christmas Seals are case finding, education, research, and patient rehabilitation. They have proved successful, and with new research developments may some day solve the tuberculosis problem entirely.

So use Christmas Seals from now 'til Christmas... and remember to answer the letter, please.

**Buy and use
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Public Utilities Fortnightly



New advantages for truck users introduced in all-new **Dodge Power Giants for '58**

power, payload, economy and styling features make Dodge 4-way leaders of the low-priced 3

and like a claim Dodge can't back up? Mister, couldn't be further off base. These all-new '58 *Power Giants* are the most outstanding trucks in our 40-year history.

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Don't take anyone's word for it . . . see for yourself. Get your Dodge dealer on the phone right now and have him bring you a new *Power Giant*. Drive it and you'll be first to agree that Dodge *Power Giants* lead the low-priced three all four ways.

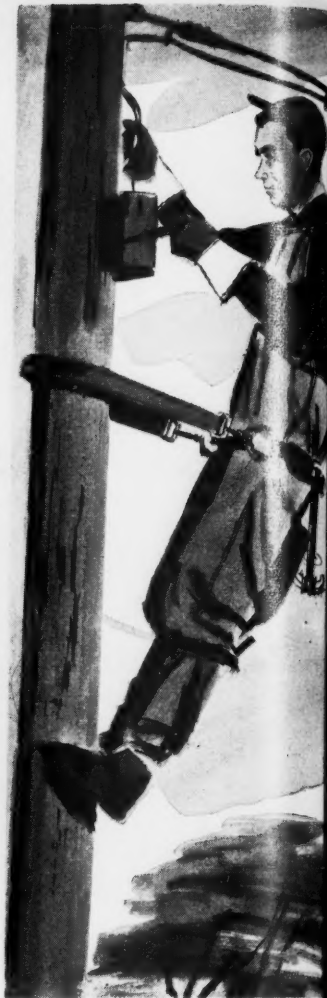
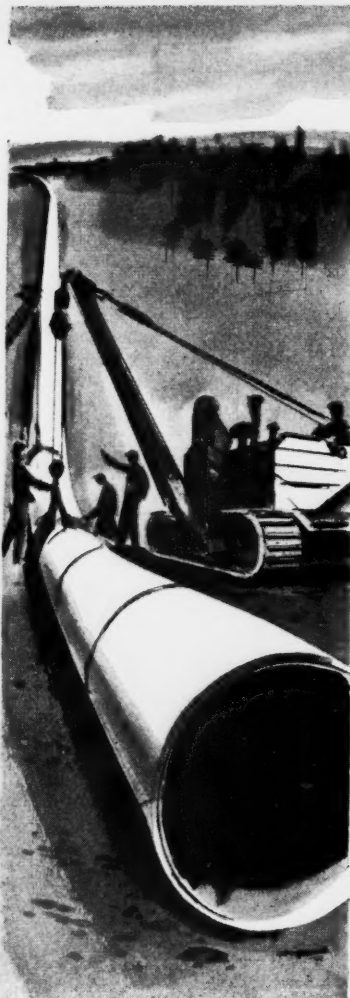
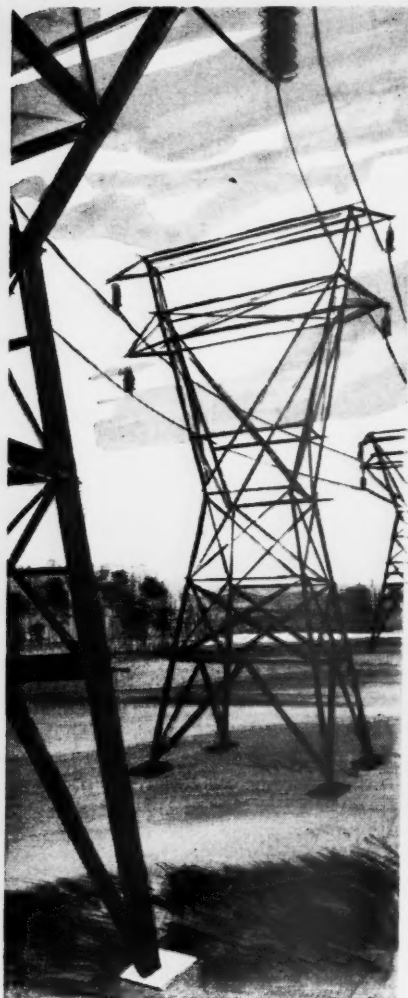
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2. First in Payload! You save money on every run you make. Dodge chassis construction cuts excess weight, lets you haul up to $\frac{1}{3}$ more payload.

3. First in Economy! Exclusive Power-Dome engine design reduces harmful carbon deposits. You get better gas mileage . . . cut upkeep costs way low.

4. First in Styling! Dodge rugged good looks—striking dual headlights, smart new grille and new luxury cabs—lend prestige to your operations.

DODGE *Power Giants*



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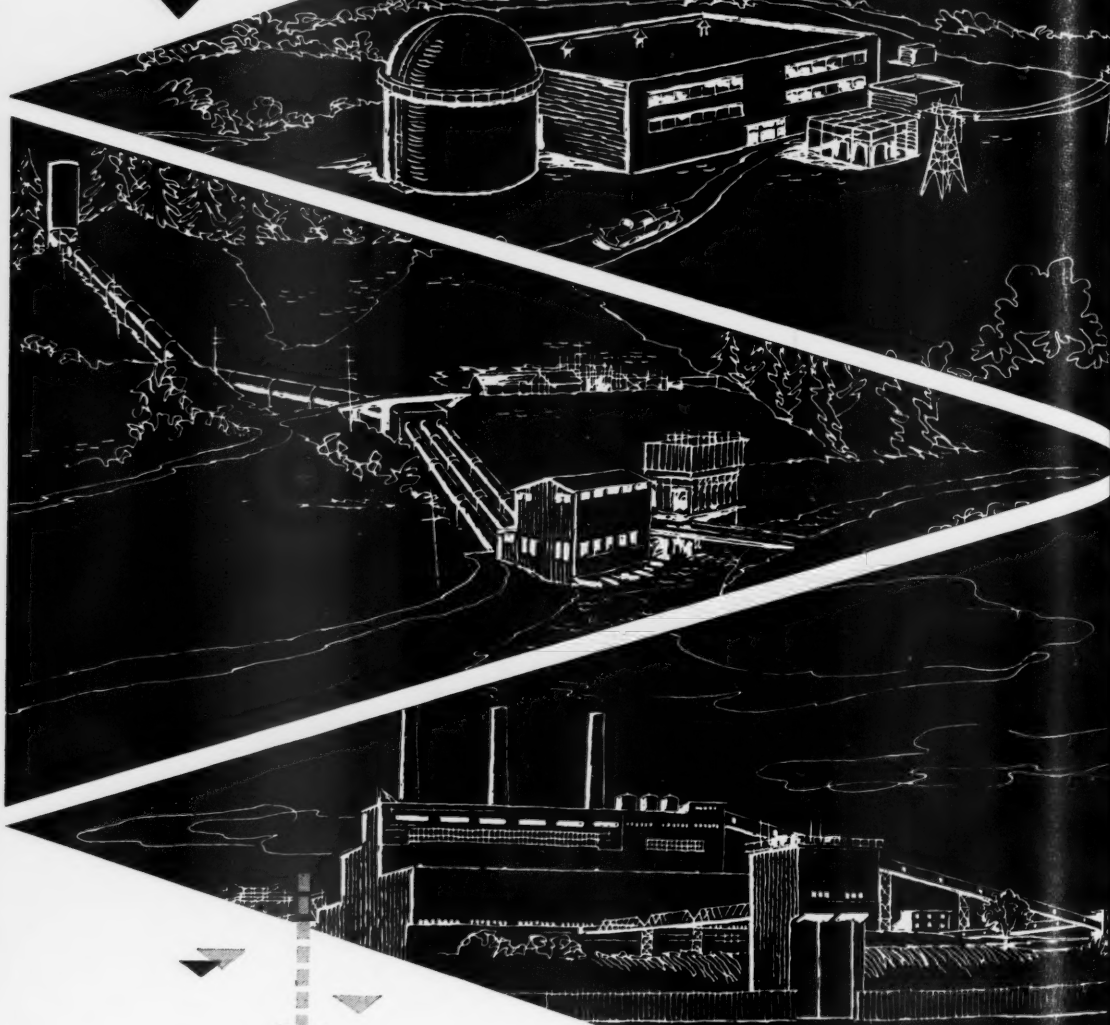


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UTILITIES

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NOVEMBER - DECEMBER

Thursday—21 <i>Public Utilities Association, Region II, begins annual conference, Washington, D. C.</i> 	Friday—22 <i>National Warm Air Heating and Air Conditioning Association ends 5-day meeting, Chicago, Ill.</i>	Saturday—23 <i>American Gas Association-Edison Electric Institute, Accounting Division Depreciation Committee, will hold meeting, Baltimore, Md. Dec. 9, 10. Advance notice.</i>	Sunday—24 <i>Electric Companies Public Information Program, Steering Committee, will hold meeting, New York, N. Y. Dec. 11. Advance notice.</i>
Monday—25 <i>Edison Electric Institute, Commercial Cooking and Water Heating Committee, will hold meeting, Detroit, Mich. Dec. 12, 13. Advance notice.</i>	Tuesday—26 <i>Electric Companies Advertising Program will hold management group meeting, New York, N. Y. Dec. 13. Advance notice.</i>	Wednesday—27 <i>American Gas Association will hold home service workshop, Minneapolis, Minn. Jan. 6-8, 1958. Advance notice.</i>	Thursday—28 <i>New England Gas Association, Operating Division, will hold meeting, Boston, Mass. Jan. 23, 1958. Advance notice.</i>
Friday—29 <i>American Society of Heating and Air Conditioning Engineers will hold annual meeting, Pittsburgh, Pa. Jan. 27-29, 1958. Advance notice.</i> 	Saturday—30 <i>New England Gas Association, Accounting Division, will hold meeting, Boston, Mass. Jan. 30, 1958. Advance notice.</i>	DECEMBER Sunday—1 <i>American Society of Mechanical Engineers begins annual meeting, New York, N. Y.</i>	Monday—2 <i>Florida Telephone Association begins annual convention, Miami Beach, Fla.</i>
Tuesday—3 <i>American Transit Association, Advisory Committee on Rail Cars, begins meeting, Boston, Mass.</i>	Wednesday—4 <i>Edison Electric Institute, Electric Space Heating and Air Conditioning Committee, begins meeting, Cincinnati, Ohio.</i>	Thursday—5 <i>Edison Electric Institute, Market Research Committee, begins meeting, Louisville, Ky.</i>	Friday—6 <i>American Gas Association-Edison Electric Institute end 6-day electronic accounting machine development seminar, Detroit, Mich.</i>



*Courtesy, Pacific Northwest Pipeline Corporation
Photograph by Robert Y. Richie*

Drilling for Natural Gas in the San Juan Basin

This rig near Ignacio, Colorado, figured prominently in an industry color film.

Public Utilities

FORTNIGHTLY

VOL. 60, No. 11



NOVEMBER 21, 1957

The Crisis in Bond Financing

Within the framework of our free society the only way to relate savings to capital demand has been through the interest rate. While this process involves dislocations from time to time, deviation from an orderly system is likely to change our economic structure as well as our free society over a long run.

By FERGUS J. McDIARMID*

The Crisis in Bond Financing

THE crying economic need of this country right now is for savings and still more savings. This shortage in savings is by no means confined to the United States. In fact, in nearly all countries of the Free World the shortage is much more acute than here.

This was the central thought I carried away from listening to a series of lectures

during the last week in June in Beloit, Wisconsin, an annual occasion at which leading professors, economists, and heads of business expound their views on a great variety of subjects to the investment fraternity of the life insurance industry. Here are some of the more thought-worthy statements which impressed me. I cannot vouch for their accuracy, but they were made by authorities in their fields with presumably no axes to grind.

1. At the present time savings, measured by net capital formation,

* Vice president in charge of investments, The Lincoln National Life Insurance Company, Fort Wayne, Indiana. For additional personal note, see "Pages with the Editors."

PUBLIC UTILITIES FORTNIGHTLY

amount to about 15 per cent of our Gross National Product, compared with 20 per cent during the boom of the twenties. The level of savings in relation to the size of our economy is therefore now about one-fourth lower than thirty years ago, mainly due to the greatly increased tax burden on those who do most of the saving. With this reduced level of savings we are trying to finance the capital requirements of a civilian boom, superimposed on those of a cold war. In the twenties capital requirements were very largely those of the civilian economy only.

2. In Russia an estimated 30 per cent of the Gross National Product is going into capital formation, resulting in an increase in output per man-hour there at the rate of about 10 per cent a year, starting of course from a relatively low base. Our present rate of increase in output per man-hour is about $2\frac{1}{2}$ per cent a year. In Russia about one-third of the Gross National Product is paid in wages, against about two-thirds in this country.

3. Prior to 1914 money wages in this country rose about in line with productivity. From 1915-40 they rose a little faster than productivity. Since 1945 they have been rising about twice as fast as productivity. At present money wages are rising about 5 per cent a year, against an increase in productivity of $2\frac{1}{2}$ per cent, indicating a $2\frac{1}{2}$ per cent annual rate of inflation.

4. Modern governments lack either the power or willingness—probably they lack both—to maintain the value of their currencies. For this reason long-term bonds have become an obsolete form of

investment media. Under present conditions, bonds have a built-in cheating device. The government should sell savings bonds to individuals with the principal repayment geared to a cost-of-living index.

This last view was expressed not by a young theoretician in an attempt to say something striking and challenging. It was expressed by an elderly and well-known professor of economics of one of the Ivy League colleges with broad, practical experience in government and business.

Corporate Bonds Not Immortal

THE long-term corporate bond is a man-made financial instrument of no great antiquity and with no guaranties attached as to its future longevity. Historically, it postdates the steam locomotive, which invention had a great deal to do with calling it into being. How long it will survive the passing of the steam locomotive is a good question. Compared with the common stock or share, the corporate bond is a very late comer and a rather delicate one. It needs a special economic climate in which to survive, and the principal characteristic of that climate is relatively stable money—money which inspires trust for the long-term future.

It is no accident at all that the corporate bond was only developed after a stable currency based on gold had come into being early in the preceding century. As faith in the value of the currency unit grew, it became possible to issue such bonds for progressively longer periods. The West Shore Railroad 4's maturing in the year 2361 and sold in 1886 set some sort of record. Such an issue showed very strong prevailing faith in both the rail-

THE CRISIS IN BOND FINANCING

road industry and the value of the dollar. As the last century drew to a close the marketing of railroad bonds maturing in a mere ninety-nine years and bearing comparatively modest rates of interest became child's play for the investment banking fraternity. This was at the close of nearly a century of generally falling wholesale prices and increasing value of money. It would be almost impossible to sell bonds of such maturity today except at quite high interest rates.

WHAT happens when things go entirely the other way—when people pretty well have lost faith in the future value of their money? Recently, the French government sold a 10-year bond issue at 5 per cent. Purchasers were promised a bonus at the end of ten years geared to the level of the stock market prevailing at that time, but in no event less than 10 per cent. A lottery was set up to accelerate for some lucky holders the collection of the bonus. This sort of thing indicates a twilight of bond financing in a country which, prior to 1914, was one of the principal saving and capital exporting countries of the world, a country whose bond buyers played a major rôle in financing the railroads of Imperial Russia and much of eastern Europe and

which financed most of the original construction of the Suez Canal and other enterprises around the world.

The Captive Market for Corporate Bonds

IN this country the market for corporate bonds has changed in the last twenty-five years to a really revolutionary extent. It has become almost entirely an institutional market. Corporate bonds, and most particularly public utility bonds, are now sold to financial institutions, mainly life insurance companies and private and public pension funds. Hardly any go to individuals. These institutions feel constrained by the nature of their obligations or the laws under which they operate to invest in fixed interest securities.

Take the life insurance companies, which own somewhere between one-half and two-thirds of all public utility bonds outstanding. On average something approaching 90 per cent of their assets must by law be invested in fixed dollar media of one kind and another. Only a small proportion may be placed in equities such as common stocks and real estate. This proportion is tending to increase but it is still small. The structure of the life insurance business, involving fixed dollar liabilities rigidly defined, is the reason. This situation need not continue indefinitely.



“At the present time savings, measured by net capital formation, amount to about 15 per cent of our Gross National Product, compared with 20 per cent during the boom of the twenties. The level of savings in relation to the size of our economy is therefore now about one-fourth lower than thirty years ago, mainly due to the greatly increased tax burden on those who do most of the saving. With this reduced level of savings we are trying to finance the capital requirements of a civilian boom, superimposed on those of a cold war.”

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Private pension funds are less restricted, and some of them place a substantial part of their funds in equities. However, they are still large buyers of corporate bonds. A large proportion of public pension funds, such as the teachers' and public employees' pension funds of the various states, are still very largely restricted to fixed dollar media, mostly bonds. However, in some states, such as Wisconsin, these restrictions are being progressively removed.

THE life insurance companies and pension funds provide the principal market for corporate bonds today, and this market is in the nature of a captive market. Without it, these bonds would be unsalable in any great volume. It is an interesting commentary that the people who run these institutional funds would not think of buying for their own account the type of corporate bonds which they buy in large quantity for the funds which they administer.

For that matter, how many public utility executives would remotely consider buying the bonds of their own company today? Thirty years ago, with much lower income tax rates and strong faith in the dollar, it would have been quite different. Like other individuals they are now torn between a desire to hedge against inflation through equity investments and a desire for tax exemption by buying municipal bonds. Based on recent trends in the stock and municipal bond markets, the former desire appears the stronger.

How long is this captive market for corporate bonds likely to survive in the face of present trends? Markets, like other things, are unlikely to flourish long

in captivity. They either make their escape or languish. It is unlikely that a type of security which is shunned by intelligent individuals with freedom of choice will indefinitely find a large and expanding market elsewhere. Institutional funds, such as life insurance companies' and pension funds, were established to provide economic security for large numbers of people in the future. The mere payment by them of a fixed number of dollars does not necessarily insure such security. As the dollar continues to lose purchasing power, public faith in these funds to do the job expected of them will decline, and the funds will either have to find new investment media or cease to attract the savings of thinking people. What then will become of the captive market for corporate bonds?

There are some indications that this captive market is no longer a growing one or that it may cease to grow in the not distant future. As I pointed out in an article in the *FORTNIGHTLY* in June,¹ life company assets for the time being at least are growing at a less rapid rate than formerly. The private pension funds are becoming increasingly equity minded; and when they do buy bonds, have convertibility or stock warrants very much in mind. The public pension funds are starting to broaden the scope of their investments, also in the direction of equities.

The 30-year Public Utility Bond

LET us take a look at that rather standardized creature, the long-term mortgage bond, which is the principal doorway into the capital markets of the elec-

¹"Inflation and Utility Financing and Regulation," by Fergus J. McDiarmid, *PUBLIC UTILITIES FORTNIGHTLY*, June 20, 1957, Vol. 59, No. 13.



Impact of Tradition on Financing

“THE instruments of public utility senior financing now in use largely date from a period when the financial and economic climate was much different from that now prevailing. They became standardized in their present form during the decade of the thirties, a period of low capital demand, when the supply of available savings was greater than the outlets. It was a seller's market for senior securities, in which the bargaining power was largely on the side of the issuer. Further deflation rather than inflation was the prevailing fear. The Great Depression, with its bankruptcies, defaults, and declining stock prices, was hardly over, and dominated the thinking in financial circles. Investors were seeking mainly security of interest and principal payments.”

tric, telephone, and water utilities. It nearly always runs for thirty years, sometimes longer. Generally speaking, its terms insure no return of principal before maturity. Until quite recently it was callable at a modest premium at the option of the borrower (not the lender), and for a long time this premium was about three points.

As things have worked out in the last twenty years, this type of instrument has been in the nature of a financial booby

trap. We saw the 5's refunding into 3 $\frac{3}{4}$'s, the 3 $\frac{3}{4}$'s into 3 $\frac{1}{4}$'s, and the 3 $\frac{1}{4}$'s into 2 $\frac{5}{8}$'s. We still have the 2 $\frac{5}{8}$'s, and we or our successors will doubtless sit with them until some such dismal year as 1977.

LET us take a practical example, and let us take a good one while we are at it. My choice is the mortgage bonds of a certain water company sold in 1946, which are 2 $\frac{5}{8}$ of 1976. We wish that we

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could forget them but we cannot—not until after 1976 anyway.

These bonds were sold at a price of 105 at the height of the cheap money era of the 1940's. The issue was a success at the time. However, let us look at the sorry subsequent arithmetic. The present market for these bonds is nebulous, of course there is no sinking fund. But let us give them the benefit of the doubt and assume they could be moved today on a $4\frac{1}{2}$ per cent yield basis, which would indicate a price of 79—26 points below cost.

Now let us go a step further. According to the Labor Department Cost of Living Index our dollar is now worth only 70 per cent of what it was in 1946 when these bonds were sold. So the selling price of these bonds today would be equivalent to only 55 in 1946 dollars. The loss on sale then would be 50 points of the 1946 variety and would be nearly twice as great as the value of all the coupons collected in the last eleven years. This is an extreme case but not an untypical one. It is to be hoped that the mains of this water company hold water better than its bonds have retained their value in terms of purchasing power.

It might at this point begin to appear that 30-year utility bonds during the last dozen years have not been the most rewarding of investment media. Back in the thirties if one wanted to observe the ulcers of a financial institution one concentrated on the foreclosed real estate account, which was a rough measure of its main trouble and degree of liquidity. Today one directs his attention to the amount of long-term, low-coupon bonds held, in which category public utility bonds usually tend to predominate.

New Thinking Needed

THE instruments of public utility senior financing now in use largely date from a period when the financial and economic climate was much different from that now prevailing. They became standardized in their present form during the decade of the thirties, a period of low capital demand, when the supply of available savings was greater than the outlets. It was a seller's market for senior securities, in which the bargaining power was largely on the side of the issuer. Further deflation rather than inflation was the prevailing fear. The Great Depression, with its bankruptcies, defaults, and declining stock prices, was hardly over, and dominated the thinking in financial circles. Investors were seeking mainly security of interest and principal payments. Protection against refunding received little thought; after all, it was reassuring to have your money flow through your hands again. Equities were considered highly unsuitable for the investment of trust funds.

All of that is now greatly changed. Investors are not now inclined to question the dollar security of good quality bonds, particularly those of public utilities. They are, however, keenly aware of what can happen to the dollar income from them as a result of refunding during a dip in interest rates. Inflation is on everyone's mind. As a result, equities have come into their own, and they are now selling at close to all-time highs, while bonds are selling at the lowest prices in over three decades.

THE yield obtained from current dividends on a cross section of good in-

THE CRISIS IN BOND FINANCING

dustrial stocks is now materially below the rate obtained from good quality bonds, and even in the utility field the dividend yield on common stocks is now closely in line with that on bonds and in some cases lower.

UNDER these circumstances there are signs around that the standard type of utility bond widely used during the last three or four decades has to some extent outworn its welcome in the eyes of institutional investors today. It is true that such bonds are still being sold in quantity, but with increasing resistance. There is a growing yield spread between these so-called high-grade 30-year utility bonds with no amortization and high-grade industrial bonds of generally shorter maturity and containing substantial sinking funds.

In a period when money tends to progressively lose value, there is good argument against tying up funds in a frozen state for thirty years even at an interest rate which is generous by the standards of the last two decades. Institutional investors which already have their portfolios loaded up with the species, now all selling at substantial discounts, may be inclined to say that enough is enough if they can employ their funds advantageously elsewhere.

UTILITY managements today are in the habit of projecting their capital requirements far into the future in total amounts which soar into the billions. No doubt they are correct in doing so. A fraction of these requirements will be met from internal sources, depreciation accruals, and retained earnings. However, the greater part they expect to raise from the sale of senior securities, bonds, debentures, and preferred stocks. I am not at all sure that the type of these which has sold readily in the past will do the job in the future.

With respect to bonds, the recently announced major financing of the U. S. government should have helped to put the handwriting on the wall. A 4 per cent four-year bond maturing at the option of the lender in two years was considered necessary to do the job in hand. An interesting question is what the government would have to pay to sell a 30-year bond in large quantity at this time. It might be rather shocking.

It seems to me that the utilities may have to consider selling their bonds with maturities of twenty years, or even less, and include provision for substantial sinking funds. Otherwise they may find themselves paying penalty interest rates. This type of financing would, of course, involve going to the market more often, but is



Q "If you set a trap for an investor in broad daylight, in front of his very eyes, it is not very flattering to his intelligence. . . . after what has happened to them in the last twenty years, investors should be able to recognize such a trap in the old standardized call provisions which a good many regulatory bodies still insist that utilities put into their bonds. In view of probable future fluctuations in interest rates, a moderate increase in call premiums does not seem to fill the bill."

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there anything particularly bad about that? The operation of a sinking fund tends to support the market for bonds and enables the investor to get out at a decent price before maturity if he so desires. The holders of industrial and gas company bonds are well aware of how this has worked to their advantage recently.

BONDS and debentures convertible into common stock may have to play a more prominent part in public utility financing than formerly if the market for bonds without convertibility continues to shrink or even remain static. One might even suggest a utility mortgage bond with half of the principal convertible into common stock at some price modestly above the market at the time of issue. Such an arrangement would provide some offset to a lack of amortization in long-term utility bonds. It would, of course, have to be protected against premature refunding. It would probably have an interesting reception in an otherwise unreceptive bond market and would serve to considerably enlarge the potential market for public utility bonds.

Such convertible bonds would be especially attractive in those jurisdictions which give substantial weight to reproduction cost in arriving at rate bases. In my opinion, the extent of such jurisdictions will have to increase if the utilities are to compete favorably with other industries in meeting their equity capital requirements. When a rate base is set strictly on the basis of original cost depreciated, the common stock takes on some of the character of a very junior preferred stock, which carries the risk of

the business but which can expect quite limited appreciation on the upside. This is not the type of stock which present equity buyers are actively seeking.

WHILE we are close to the subject, let us say another word about call protection. If you set a trap for an investor in broad daylight, in front of his very eyes, it is not very flattering to his intelligence. As I have already pointed out, after what has happened to them in the last twenty years, investors should be able to recognize such a trap in the old standardized call provisions which a good many regulatory bodies still insist that utilities put into their bonds. In view of probable future fluctuations in interest rates, a moderate increase in call premiums does not seem to fill the bill. Such insistence on immediate financial callability seems to be the result of doctrinaire thinking sadly out of touch with our present financial climate. It has as its basis the premise that the bond buyer, even in this inflationary period, is fair game for any device that can be used to detract from the substance of his contract. I have tried to answer such thinking by suggesting that a bond be made immediately callable at 102 at the option of the borrower and at 98 at the option of the lender. This would be in the nature of a two-way street. It would enable the borrower to benefit if interest rates went down much and the lender to benefit if they went up much. I have yet to hear a good reason why this idea is not fair.

How much extra interest does failure to offer financial noncallability, say, for a 10-year period (five years is not



Would You Buy Your Company's Bonds?

"THE life insurance companies and pension funds provide the principal market for corporate bonds today, and this market is in the nature of a captive market. Without it, these bonds would be unsalable in any great volume. It is an interesting commentary that the people who run these institutional funds would not think of buying for their own account the type of corporate bonds which they buy in large quantity for the funds which they administer. For that matter, how many public utility executives would remotely consider buying the bonds of their own company today?"

enough), cost the utilities in today's bond market? By comparing the interest rates paid on certain recent public issues, where the protection was not given, with certain privately negotiated issues, where it was, I would judge the extra interest cost on the former over the latter to be in the range three-eighths to one-half of one per cent. An increasing number of institutional bond buyers are entirely unreceptive to bonds which are immediately callable through refunding unless the call premium offered is extremely high.

What has been said about bonds applies in large measure to preferred stocks. A preferred stock, which is in the nature of

a fixed dollar perpetuity, just does not seem to fit the requirements of today's investors. True, it may enjoy a limited captive market with fire and casualty insurance companies and others for whom a tax advantage exists. Convertibility into common stock would help a lot in today's equity-minded capital markets. Sinking funds also are desirable. However, without either of these, preferred stocks are likely to have an increasingly difficult time finding a home.

Tight Money and Flight from the Dollar

IN a society such as ours, the interest rate is a rationing device channeling

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the flow of savings to those who are most creditworthy and to those who can most productively use those savings. In a time of heavy demand for funds in relation to the supply, enterprises of marginal economic success have difficulty raising loan capital on any basis. The level of interest rates serves to equate the supply of savings to the demand.

Is this a proper situation under present circumstances; and, if not, what are the alternatives? I believe there are two principal alternatives.

A GOVERNMENT agency might be established to decide priorities as to capital needs and to direct the flow of savings into selected channels. This would, of course, involve a considerable change in the nature of our economy, in fact, a quite revolutionary change. We would no longer have a free society in the sense that we have understood it in the past. It is doubtful that the proper degree of wisdom could be assembled in any such agency. It is also highly doubtful that under such circumstances the required flow of savings could be maintained on a voluntary basis. In Russia, of course, savings accumulation is very high as a proportion of the national income. Savings required for capital investment by the government come first; food, clothing, and shelter for the people come out of what is left. In France, on the other hand, where inflation has destroyed the will to save and where the necessary compulsions do not exist, the government attempts to ration a savings accumulation which is very small. The individual builder of a house in France today pays cash on the barrel head as the work progresses. There is no source of mortgage money.

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ANOTHER and still more obvious method would be for the government to increase the apparent supply of investment funds by inflating the currency by expanding bank credit. This would be equivalent to trying to cure the drunkard by giving him another drink. The mere embarkation on such a course in the present state of public awareness of inflationary trends would accelerate the flight from the dollar which is already under way. How else can one account for the fact that while some utilities of good credit standing have recently had to pay 6 per cent for first mortgage money, some industrial growth stocks are selling at close to 40 times current earnings, and even public utility stocks are selling to yield less than the new issue bonds of the same companies. To trifle with bank credit expansion under present conditions would be like throwing matches around in a dry forest. The crawling inflation now with us would get up and gallop. And yet there are powerful voices in and out of Congress who would do just that. One cannot think of a quicker way to dry up the present flow of real savings.

How high on a relative basis are interest rates in this country? The First National City Bank bulletin of July, 1957, cited the current prime loan rates in the various countries. Here are some examples taken from that bulletin:

Brazil	12%
Germany	9
France	7
Australia	5½
Canada	5½
Great Britain	5½
Switzerland	4½
United States	4

Paradoxically the 12 per cent rate in

THE CRISIS IN BOND FINANCING

Brazil is no higher than the rate here because the Brazilian currency seems to be losing value against the dollar at the rate of about 8 per cent a year so that 8 per cent out of the 12 per cent is required to offset this loss. Or, going a step further, since our dollar in the past year has lost over 3 per cent of its purchasing power and continues to lose, our real prime rate adjusted is under 1 per cent.

I REALLY cannot see anything wrong with this line of thought. If, as some prominent economists envisage, we are to have our money depreciate about 3 per cent a year, and that this will be called normalcy, then this depreciation rate will have to be included in the interest rates if savings are to continue. A realistic approach even today must regard some part of any interest rate charged as not real interest at all but as an offset to inflation. During the past year this offset would have been over 3 per cent. A 5 per cent interest rate would have returned less than 2 per cent of real interest. That is the way people will increasingly view the matter should the present inflationary trend not be halted within a year or two. Of course, under such circumstances people will want to lend for fairly short periods so that they can change the interest

rate periodically to keep in step with the rate of inflation. This is one reason why I feel that public utilities in the future may have to issue bonds for a much shorter period than thirty years.

Conclusions

IN this article I have been trying to make certain points, which I shall summarize:

1. Within the framework of our free society as we have known it in the past, the only way to equate savings to capital demand is through the interest rate. This process involves pain to some, but deviation from it is likely to change our economic system, probably not for the better, and in the long run our free society as well.

2. Our principal financial media of today depend on relatively stable money to survive. They now face a real crisis in which their survival is by no means assured.

3. The public utility industry, unlike most other industries, is heavily dependent on outside capital markets. It will probably have to show a good deal of flexibility in devising its financial media (more than in the past) if it is to be able to draw on those markets for the funds which it will require.

TV Seen by Oil Light

FARMERS who watched television by lamplight because they distrusted electricity were discovered by investigators from Britain's southwestern electricity board. The board recently made inquiries into the small quantities of electricity used in parts of southwest England.

"Many farmers hold the view that electricity is newfangled stuff . . . to be handled with caution," said the board. "The only use some farmers made of the power was to install television sets to placate their wives." One wife admitted she found electric light useful. "I always switch it on so that I can see to fill my oil lamps," she said.

Energy—Its Use and Abuse

The importance of energy, and therefore of energy sources and energy resources, can hardly be overemphasized. Fortunately, we can see a mounting concern for the dynamics of our energy supply. Maintaining the supply of the energy resources which we consume has been attracting more and well-merited attention.

By WILLIAM R. CONNOLE*

THE spendthrift nurses his last remaining dollar bill with many times the loving care devoted to his first "C" note. In the same fashion, contemporary America begins to display signs of prudent concern for tomorrow's energy supply. We feel the bottom of our fossil fuel pocket. We are stunned by the thought of an end to this formerly inexhaustible store.

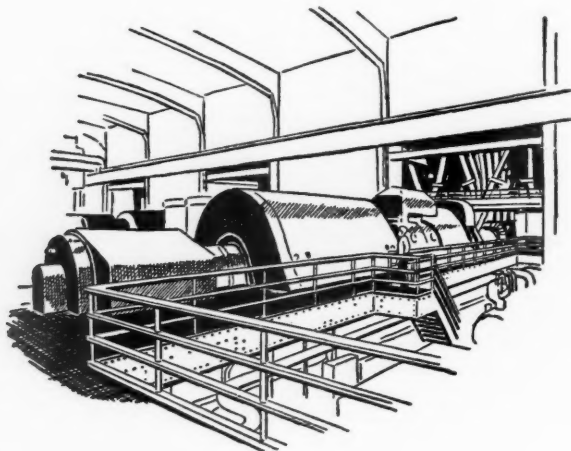
When the Sault Ste. Marie Canal was completed in 1855, Henry Clay could say the utility of those wilderness works was beyond human imagination to conceive. Generations gave little thought to the de-

crease of bountiful endowment of forests, coal, petroleum, and natural gas. They saw no bottom to that resource pocket; no end to the rich store of fossil fuel supplies.

Nor has the time come to take a deeply pessimistic view of the matter. Yet whatever affects our energy supplies concerns us vitally. The time is here when every American must concern himself to secure a valid measure of the degree in which these irreplaceable stores must be conservatively used. Especially so for Americans who work daily with our greatest energy source—the fossil fuels.

* Member, Federal Power Commission. For additional personal note, see "Pages with the Editors."

ADMIRAL Rickover of the U. S. Navy and Atomic Energy Commis-



ENERGY—ITS USE AND ABUSE

sion has effectively described the critical importance of those fuels. He expressed himself so clearly that his thoughts cannot be improved by paraphrase. Let me read the Admiral's own words:

We live in what historians may some day call the Fossil Fuel Age. Today coal, oil, and natural gas supply 93 per cent of the world's energy; water power accounts for only 1 per cent; and the labor of men and domestic animals the remaining 6 per cent. This is a startling reversal of corresponding figures for 1850—only a century ago. Then fossil fuels supplied 5 per cent of the world's energy, and men and animals 94 per cent. Five-sixths of all the coal, oil, and gas consumed since the beginning of the Fossil Fuel Age has been burned up in the last fifty-five years. . . . All the fossil fuels used before 1900 would not last five years at today's rates of consumption.

Nowhere are these rates higher and growing faster than in the United States. Our country, with only 6 per cent of the world's population, uses one-third of the world's total energy input; this proportion would be even greater except that we use energy more efficiently than other countries. Each American has at his disposal, each year, energy equivalent to that obtainable from eight tons of coal. This is six times the world's per capita energy consumption . . .

With high energy consumption goes a high standard of living. Thus the enormous fossil energy which we in this country control feeds machines which make each of us master of an army of mechanical slaves. Man's mus-

cle power is rated at 35 watts continuously, or one-twentieth horsepower. Machines therefore furnish every American industrial worker with energy equivalent to that of 244 men, while at least 2,000 men push his automobile along the road, and his family is supplied with 33 faithful household helpers. Each locomotive engineer controls energy equivalent to that of 100,000 men; each jet pilot of 700,000 men. . . .

THESE facts give special urgency to the need for constructive thinking about our energy resources. We find ourselves speeding at an ever-accelerating rate toward a day when the sources we rely on for virtually all of our energy will be available no longer. Consider for a moment only that one factor: population growth.

The rate of population increase, standing alone, is enough to startle the most indifferent. Consider that in the 8,000 years since the beginning of history to the year 2000 A.D., world population will have grown from 10 million to 4 billion. Ninety per cent of that growth will have occurred in the last twentieth of that period; namely, 400 years. The first 3,000 years of recorded history were required to accomplish the *first* doubling of population, only 100 years for the *last* doubling. The *next* doubling, however, will require only fifty years. Calculation produces the astonishing fact that for every twenty human beings ever born into this world, one is alive today.

Considering America alone, by the year 2000 our population of 300 million will be four times the 75 million of 1900.

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Since this growth is as much the cause as the result of our prodigious consumption of irreplaceable fossil energy sources, think what this means to the very well-springs of our material civilization!

AN interesting recent discussion of this question appears in a publication of the Mellon National Bank and Trust Company.

James N. Land, a vice president of the bank, states it as follows:

... our rising population is creating pressures on natural resources which in a number of respects tend to retard further increases in material well-being. Because our population is expanding rapidly, we must drill deeper oil wells and exploit less-productive veins of coal and other minerals and less-accessible and poorer-quality forest areas and go further afield for the water supplies of our cities, all of which adds to unit costs and is a drag on prosperity.

Is it not possible that fossil fuels may reach a stage of *practical, economic* exhaustion before they become physically exhausted? To expect engineering advances will speed up efficiency rates of our fossil fuels burning equipment enough to offset this factor of exhaustion relies

very heavily on the speculative factor of human ingenuity.

No matter how we twist and turn to avoid it; no matter how difficult it may be to admit, a central fact inevitably emerges from all of this. The source of 94 per cent of the energy used in the world today has a limited existence duration.

The ultimate extent of those limits is much closer than we care to admit. The unpleasant, but uncontrovertible, fact emerges: that according to our best estimates total fossil fuel reserves recoverable at unit costs up to double today's are likely to run out some time between the year 2000 and 2050, assuming present living standards and population growth rates.

PRUDENT husbandry, until we see reasonable assurance that they will be replaced by something else, obviously calls for careful conservation of the resources at our disposal. In the area of my birth and boyhood there is a mythical organization, the NESPIC. All New England Yankees have automatic membership in that brotherhood. Its letters mean: "New England Society for the Prevention of Impairment of Capital." It has well fostered the integrity and sta-



Q"*WHEN the Sault Ste. Marie Canal was completed in 1855, Henry Clay could say the utility of those wilderness works was beyond human imagination to conceive. Generations gave little thought to the decrease of bountiful endowment of forests, coal, petroleum, and natural gas. They saw no bottom to that resource pocket; no end to the rich store of fossil fuel supplies. Nor has the time come to take a deeply pessimistic view of the matter. Yet whatever affects our energy supplies concerns us vitally.*"

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bility of both the financial institutions and the personal fortunes of New England.

Of vastly more importance, however, is the development of policy that views with equal abhorrence practices that threaten to exhaust the material nest egg of all modern civilization—its energy sources.

All domestic or international policies ever developed would be worthless if the nations and peoples they motivate are reduced to primeval incompetence for lack of energy resources. It took more than the addition of a few cubic centimeters of grey matter to a sloping prehistoric human skull to give society meaning! It took the understanding of how to develop, use, and control energy. Only with this accomplished did man's relation to man become important, and, by extension, nations' relations with nations only then became significant. When simple, dumb survival is a consuming 24-hour problem men have no patience or need for the finer humanitarian considerations.

WITHIN the near future some of the most important decisions affecting energy use in the century will be made. It is in fact going on presently. I would like to suggest, first, the extent to which I feel these decisions are among the most important material decisions that man can possibly make. Secondly, it is to relate this conclusion to that part of the energy use policy we deal with most intimately, the natural gas pipeline business and its regulation by the Natural Gas Act.

Harnessing the energy released through the process of fission or fusion of appropriate materials, contains the most promising hope for future energy sources. So

much remains to be done in this field, however, and so few understand the difficulties in adopting the energy produced in reactors, that a simple acceptance of "atomic energy" as a cure-all would be a grave mistake. Our national fossil energy policy must be given a broader foundation.

Consider, for example, that no one has even suggested how atomic energy may be used for such small vehicles as automobiles. Automobiles consume something like 50 per cent of the petroleum used in this country. The chief of the naval reactors branch of the Atomic Energy Commission says that, because of its inherent characteristics, nuclear fuel cannot be used directly in small machines; further, that it is doubtful whether in the foreseeable future it could furnish economical fuel for civilian airplanes or ships, except the very large craft.

NUCLEAR fuels will probably find their first practical application in the generation of electric energy. Yet even in this area, despite intensive effort by governmental and private agencies, the prospect of meeting our energy needs remains distant. Once again, the practical problem of cost rears its ugly head.

The "Panel on the Impact of the Peaceful Uses of Atomic Energy" reported to the Congress in January, 1956, on the total United States electric-generating capability and on the portions of that capability that would be provided by nuclear power plants. The forecasts in that report covered the period 1955 to 1980 and employed a wide range of assumptions. In both the lower range and the upper range, however, it will be be-



Boiler Fuel Customers Favored?

“CIRCUMSTANCES and areas of close interfuel competition, influenced by the conventional uses of the demand-commodity rate form for gas sales, create a basis for certain speculation. This speculation is that boiler fuel purchasers and other interruptible service customers, able to bargain stoutly for low gas prices, and being valley fillers for the pipeline sellers, may be accorded special price favors. Will their habitual continuation become disastrous to the pipeline industry? The intensity of the problem is in proportion, of course, to the extent of dump-sale pricing of natural gas.”

tween 1975 and 1980 before the annual additions to nuclear capability begin to provide more than half the *new* plant capacity being added. Notice—one-half the *new* capacity. The rest will still be burning fossil fuels! By that time, according to the careful and conservative estimates of the Federal Power Commission, electric-generating capability will have reached the staggering total of 386 million kilowatts in this country alone! Compare this with the 110 million of 1955 and think what that means in terms of fuel consumption! Recall also that the

striking gains in efficiency achieved by the manufacturers and the operating utilities have greatly narrowed the gains which remain to be made in reducing fuel consumption. With our most efficient units producing a kilowatt-hour of electricity from less than six-tenths of a pound of coal, there simply is not much more you can do!

Obviously, we shall have much to answer for to the generations that follow us if we permit the promise of atomic energy to obscure our responsibility to develop a meaningful fossil fuels policy.

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THE magnitude of our energy demands shows itself most dramatically in forecasts of future needs for oil and gas. If oil and gas continue at the 1944-56 rate to increase their share of total energy used, as reported by *The Oil and Gas Journal*, by 1969 they will supply all energy. The same source calculates the demand for natural gas alone by the year 2000. Assuming that demand continues to increase at the 6.1 per cent per year rate that characterized the period 1940-50, the *Journal* finds that a total of some 560 trunk lines of a billion cubic feet daily capacity would be needed to move natural gas only forty-three years from now! There are few such lines in existence today!

Another widely quoted recent study of future natural gas production in this country is that of Lyon Terry and John Winger of the Chase Manhattan Bank in New York. They predict an increase in use of 4.7 per cent per year through 1966, when it will reach 16 trillion cubic feet. This is more than 55 per cent above this year.

Under the pressure of these staggering demands, the known and discoverable reserves in this continent will be sorely taxed. Beyond question, if natural gas is consumed at a rate even approaching that predicted by these informed, conservative sources, our energy picture twenty years hence will be far less encouraging than that which now confronts us.

NATURAL gas is uniformly conceded to be the cleanest, most convenient of fuels. It was also the cheapest for so many years that the rate of growth in usage was phenomenal wherever it became

available. That growth rate has continued in recent years. In the five years from 1951 through 1956, the share of natural gas in the total of energy derived from fuels and water power increased to 24 per cent from less than 20 per cent. This occurred while total energy used increased nearly one-third.

In view of these calculations, the expectation that natural gas demand will require the equivalent of four major pipelines a year for the next ten years, does not seem startling to anyone in the industry familiar with these recent growth patterns.

Consideration of these figures, however, forces one to conclude that somewhere, somehow, rhyme and reason must share in determining what expansion takes place. A national fuels policy is absolutely indispensable.

Governmental channels, however, can do much to improve their part in other respects. Undoubtedly the dispersion of responsibility under the necessary minimum quantity of regulation is too wide. Wasteful jurisdictional differences, contradictory policy decisions, ineffective bureaucratic bungling are often the result. Whether such co-ordination will take place, however, is largely a matter for decision by the Congress. Personally, I should heartily endorse any promising effort to relieve consumer and industry alike from any needless, crushing pressure of governmental red tape, encumbering much that seems right and needful.

ANOTHER caution must be raised that is a direct consequence of the considerations so far discussed. How may the Federal Power Commission, in administering the act, and how may the com-

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panies subject to the act adapt their thinking to the stark realities of apparently insatiable demand and sharply limited supply?

Fortunately for consumer and industry, machinery has been available since early major gas pipeline expansion to ensure that unnecessary lines are not built. Our national railroad web was spun by either shortsighted or unbelievably optimistic men. Duplicating lines, lopsided or highly watered capitalizations, lines leading through areas where traffic development could not be expected for generations, all were the result of unprincipled expansion. The inevitable, often disastrous, financial collapses that nearly wrecked the industry are now history.

THE statutory standard of public convenience and necessity, properly and firmly applied by the Federal Power Commission, should prevent such a fate for the pipeline industry. Enlightened carrying out by the commission of its rate-making responsibilities provides another preventive measure. Let me emphasize that I do not question needed pipeline expansion. What I wish to underscore is the absolute necessity that the commission and the industry weigh carefully any expansion program against two overshadowing back-

drops. First, unwise expansion will inevitably hasten fossil fuels bankruptcy. Second, uneconomic pricing to maintain artificial volumes contains the seeds of its own destruction.

ON the first point, I need only say that there must be a point, even in the face of unprecedented demand, where optimum efficiency of any given natural gas transmission and distribution system will be achieved. To be sure, demand is rising. But costs are rising even faster. Demand for natural gas, when its national average selling price is 40 cents per Mcf, is one thing. Demand may readily be an entirely different quantity when that same price reaches 60 cents. Remember, that as recently as 1951 the average consumer cost of gas was 29.8 cents.

On the point that low-priced sales of interruptible gas contain inherent hazards much can be said. The threat lurking behind every substantial interruptible sale of natural gas by a pipeline at a price not properly calculated with respect to costs and competition is not speculative. Unless out-of-pocket costs and an economically sound allocation of constant costs are recovered, the sale becomes an immediate burden. Unless the trend of competitive fuels prices and the trend of pipeline costs,



"... the American energy picture is approaching a critical stage. We face the need for immediate formulation of a sound national fossil fuels policy, with government co-ordinating and streamlining its efforts; industry and consumers assisting with sound planning for future growth and use. We who are intimately involved in the future of the natural gas industry can do our part by reappraising traditional approaches to the question whether a proposed pipeline expansion is economically sound."

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especially costs of purchased gas, are taken into account the benefits that justify the sale at first may vanish quickly.

This is not the occasion to theorize about cost allocation, cost classification, and the adaptability of given rate forms to cost structures. My concern arises because of the risks that befall a pipeline, indeed a whole industry, which relies for its backbone on a disappearing prosthetic device.

THE pipeline industry, like all public service industries except the rubber-tired industries, is characterized by a high proportion of plant to revenues; of fixed to variable costs. Most recent Federal Power Commission figures show the condition of the natural gas industry for 1955.

Gross plant amounted to more than \$7.5 billion while operating revenues during the year reached about \$2.6 billion. In that year long-term debt represented 60.4 per cent of total capitalization for the entire industry. The composite ratio of long-term debt to gross plant was 51.3 per cent and to net plant 64.5 per cent.

The absolute necessity that these high fixed costs be met each day of the year brings about the need for high load factor operation.

In this context the off-peak valley-filling sale bears the appearance of high advantage to the pipeline company. It offers the means to maintain the load-capacity ratio needed to support the closely competitive pricing thrust upon the company by availability to its customers of low-cost alternative fuels.

During the years of low wellhead and field prices of natural gas, this matter was often not viewed as a problem. Also, firms

able to develop near-market storage facilities are measurably relieved from its burden.

Less fortunate firms, attracted by the seeming advantages of off-peak sales, have provided a prominent feature of pipeline economics. Recent increases in gas producer prices have caused some of the apparent advantages of this business to lose much of their attractiveness.

THE great proportion of total pipeline sales, often on interruptible terms, made for direct industrial uses is well known. Consider, however, only the most price sensitive area of such sales; namely, the use of natural gas for fuel in thermal electric central generating stations.

In 1956, 15 per cent of net marketed production was burned for this purpose. Some startling conclusions appear when we look at the prices at which this gas was sold and project them at the rate they have increased recently.

If wellhead prices during the next three years continue the rising trend that prevailed in the period 1952 to 1956, they will average 15.5 cents by 1960, and if the proportion this average price bears to the average cost of boiler fuel is maintained at the 1955 level the average cost per million Btu of gas used for electric generation in 1960 will be 26.3 cents.

Yet the average cost per million Btu of coal for boiler fuel was 25.2 cents in 1955 having *declined* from a high of 27.3 cents in 1952.

This indicates that if natural gas prices and coal prices on a national average basis continue their relative trends of recent years, natural gas prices will be beyond competing with coal sometime before 1960.

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THESE approximations necessarily are not conclusive. They have prompted me to undertake a somewhat more comprehensive study, however, which I should like to mention briefly. This study indicates how critical is the problem confronting pipelines that rely on off-peak interruptible sales. To be sure, the hazard will arise first in the most competitive areas and in the most competitive uses. But if producer prices continue to climb, in time all interruptible sales will be placed in jeopardy.

On the basis of 1950-55 trends of steam-electric generating firms' cost of fuels in cents per million Btu as consumed, it was possible to anticipate a time when, in several sections of the country, gas would cease to be the lowest-cost industrial fuel. While costs of all fuels have increased that of gas has been especially rapid, more than 27 per cent between 1952 and 1956 for the entire United States, while the comparable increase in coal cost 3 per cent.

Since these figures apply to the entire United States some areas, especially those distant from natural gas sources and nearer to coal supplies, displayed the same trend more strikingly. In fact gas appears to be more costly than coal for several recent years in New England and the Middle Atlantic states of New York, Pennsylvania, and New Jersey. The tendency is only apparent, for naturally considerable quantities of gas continue to be used even though the annual average cost of the commodity is greater than the annual average cost of coal. The two fuels mutually display numerous advantages, as stand-by fuels, for ignition uses, and a constant 8 or 10 per cent advantage in

combustion efficiency of coal due to the inherent moisture content of natural gas.

DURING the last year of the 1950-56 period there appeared some mitigation of the tendency of gas cost to exceed that of coal. Perhaps the altered tendency is more prevalent today. It seems probable that recent coal cost increases due largely to higher freight rates have contributed to this situation. We cannot be certain, however, of the amount or extent of that contribution. Increased combustion efficiency is, naturally, a consideration in this connection. It affects all fuel costs similarly, however, and its local variations are lost or offsetting in area and national data.

Circumstances and areas of close inter-fuel competition, influenced by the conventional uses of the demand-commodity rate form for gas sales, create a basis for certain speculation. This speculation is that boiler fuel purchasers and other interruptible service customers, able to bargain stoutly for low gas prices, and being valley fillers for the pipeline sellers, may be accorded special price favors. Will their habitual continuation become disastrous to the pipeline industry? The intensity of the problem is in proportion, of course, to the extent of dump-sale pricing of natural gas. It presents two evils, however, of a most sobering nature: The growing dependence of pipeline sellers upon a market that is, to say the least, transient. That market may, one fine day, be found to have disappeared with obvious and extremely unhappy consequences for the entire industry.

In the second place, and from the viewpoint of the American consuming public,

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this form of service markedly expedites the exhaustion of a highly advantageous yet irreplaceable commodity. Toward its conservation, meaning its use by such means as to secure from it the maximum utility per cubic foot, our best efforts may well be directed.

IN conclusion, the American energy picture is approaching a critical stage. We face the need for immediate formulation of a sound national fossil fuels policy, with government co-ordinating and streamlining its efforts; industry and consumers assisting with sound planning for future growth and use. We who are intimately involved in the future of the natural gas industry can do our part by re-appraising traditional approaches to the question whether a proposed pipeline expansion is economically sound.

Perhaps attention should be given to revising negotiations with producers to give some effect to the elasticity of demand for the several classes of usage to which gas sold to pipelines, or to consumers directly and hauled by pipelines,

will be put. Stability in producer prices is no less important than incentive to explore and develop new reserves. Undoubtedly much of the pressure for extremely low dump-sale prices by producers comes from pipelines needing to maintain artificially low purchase costs in order to retain certain sales that should never have been undertaken in the first place.

RECKLESS price increases, on the other hand, which make it impossible for the pipeline to compete effectively, could kill the proverbial goose unless they are carefully adjusted for two important factors: one, the intense competition between fuels and, second, the need that a pipeline makes all sales at prices sufficient to recover the properly allocated costs. Much dissatisfaction now felt by producers could be avoided and eventual loss of markets and idling of pipeline capacity could be prevented if pipeline market building and future planning were based on sound national policy of this kind.

While the choice is ours to make, let us make it! Tomorrow it may be too late!

The Goals of Management

“WITHOUT pressure from organized groups, management, if wise and prudent, is actuated by a desire to effect continuous improvements, and to distribute the gains in three directions: to workers in more and better things in exchange for a week's work; to investors in better return on invested capital out of which the . . . labor-aiding machinery and other facilities are purchased; and to customers in providing more for less. . . . In prejudging long in advance the temper and ability to pay of customers, management faces the pivotal risk of free enterprise. The best management can do is to exercise judgment. And it must jealously guard this right to judge the future freely—without being pushed in one direction or the other by clamor.”

—M. S. RUKEYSER,
Columnist.



Engineers as Regulatory Commissioners

Part II.

This is the second instalment of an analytic discussion of an important organization problem involved in the make-up of our state commissions.

By LINCOLN SMITH*

By training and occupational contacts, many engineers are likely to support "fair value" as opposed to the "net investment" rate base in the regulation of public utilities.³² For one reason, assuming that "fair value" is more favorable to the companies regulated, many engineers and other utility employees are inclined in the direction of the monetary interests of the business-managed companies. There is also a technological explanation. Intuitively, engineers, like men of other vocations, are liable to magnify the functions of the engineer, and to resent infringements on their work. To make an engineering appraisal of a company's properties is an engineer's job. It

is not a matter of bookkeeping; that is a keynote for the net investment alternative. The task under "fair value" is one of computing with mathematical aids from original cost such variables as depreciation and accretion, with attendant ramifications which require the services of an engineer. Engineers are sometimes trained for this task. Their education now includes, especially in some midwestern schools, a course in engineering appraisal, valuation, and depreciation which considers income taxes, accounting, and business aspects of appraisal, and the various methods for its calculation, with an evaluation of each. On the national level, "fair value" went into eclipse in favor of the "net investment" theory in the celebrated Hope decision.³³ Although this is not followed in a considerable number of states, the

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function of accountants is now in a more dominating position.

ANOTHER notion (perhaps a misconception) which accounts for part of the reluctance to appoint engineer commissioners is that the precise training in technical subjects does not prepare the engineer for discretionary responsibilities at the top echelon of regulation. The engineer is taught, presumably, procedures in dealing with things—not the manipulation of symbols of interpersonal relations and procedures for dealing with people.³⁴ His training is oriented toward an inorganic point of view, because he is taught to manipulate inorganic substances and materials. The ambit of the engineer's calculation and his weakness for rigidities, precision, and orthodox proceduralism may be perverted into an obsession for the quantitative criteria of superior mechanical efficiency. This is indicative of a fragmentary approach to an enterprise economy. An all-inclusive approach, on the other hand, would involve the entire social economy—what is advantageous for enterprise may be a travesty for society as a whole.

The point is that when sheer engineering efficiency goes beyond the point of diminishing returns it becomes an uneconomic exaggeration which is not worth its costs.³⁵ Unless they have been acquired incidentally in his avocational education, social causation and teleology are liable to be blind spots in the mental processes of the ordinary engineer. Inasmuch as a commissioner is required to think, extrapolate, and act organically, economically, and politically, the average engineer, by training, may lack the approved approach to

top policy articulates. The old position was stated as follows:

The engineer, when called upon to frame a code of conduct in an industry or to settle a dispute, will, like other men, seize upon the intellectual technique (that is, the legalistic technique) which is most readily available and most generally acceptable in culture. The principal difference between him and the lawyer is that, as a rule, because of lack of training in meeting problems of this specific type, he is humanistically a good deal more naïve. He is inclined to put to literal use outworn formulas which the experienced lawyer only uses with his tongue in his cheek.³⁶

ENGINEERING has been defined as the application of "mathematical principles to the control of natural forces."³⁷ Then, again, engineering has been called "a technology which consists of a body of techniques based on relatively exact physical sciences that have no social or legal counterpart."³⁸ It can be argued that engineers and other technicians, by training, are prone to lack conceptual variations and imaginative range, and to stress quantitative rather than qualitative analyses. One observer concluded that "engineers as a class underestimate the importance of intangibles."³⁹ Mr. Cooke has published articles "declaring that the engineers and scientists have no understanding of the relations of man to society in which they are recognized as highly important factors."⁴⁰ He was very anxious to develop social-mindedness among engineers, and to get "engineers to become mindful of their duties as citi-

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zens."⁴¹ Professor Walter LaPierre has written very cogently:

. . . A familiar result of the continual association with these [physical laws of technical education] is a tendency toward dogmatism which frequently carries over, in varying strength, into other areas with unhappy results . . . The engineer . . . is disinclined to take an important interest in theories about economics and politics or in large view studies of social structures. . . . He can do no more than leave the wider view and the detection of trends, sanities, and flaws in the society to others who are less preoccupied with the day-to-day cares of the civilization.⁴²

BUT there is a countervailing view which tends to refute the above contentions, and which gives support to the appointment of engineers to positions with determinative authority. Engineering education in the more progressive schools has adopted a much wider range of interest in recent decades, with attention focused, in the peripheries at least, on liberal arts, politics, economics, finance, and planning. Fundamentals of management are stressed in many. The curricula extend beyond logic and analysis. Attempts are

made to develop imaginative, creative ability, and a fluency of ideas. "There exists a responsibility to develop these men [engineers] not particularly in the direction of scholarly attainment in specialized fields, but for problem solving based upon a working knowledge of many areas."⁴³ The writer, a political scientist, found the mental processes of many engineering students at Yale and at the University of California who were *required* to take some of his introductory courses rather inflexible to the disciplines of the social scientists. He obtained an entirely different opinion, however, of the engineers who *elected* advanced work in political science. No valid generalizations are possible; any such attempts would be presumptuous.

Examples, however, are pertinent. In the College of Engineering at New York University a program of general studies is available. This stresses humanities and social studies. The objective of the latter course "is to introduce the student to fields of study outside the exact sciences, to stimulate his curiosity about these fields, and to motivate him toward a desire to continue such studies in his post-college years."⁴⁴ Engineering law and engineering economics also are offered.



Q "By training and occupational contacts, many engineers are likely to support 'fair value' as opposed to the 'net investment' rate base in the regulation of public utilities. For one reason, assuming that 'fair value' is more favorable to the companies regulated, many engineers and other utility employees are inclined in the direction of the monetary interests of the business-managed companies. There is also a technological explanation. Intuitively, engineers, like men of other vocations, are liable to magnify the functions of the engineer, and to resent infringements on their work."

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ONE authority has shown that many engineers are becoming professional managers:

Today over a third of the management of large industry in America is in the hands of engineers, over a third of mature engineering graduates now find their duties largely ministerial in nature . . . Management has recently become a profession into which the engineer now has preferred entree.⁴⁵

Numerous engineers are practical. They can apply both accurately and objectively scientific laws and proved theories to concrete situations. In addition, their work requires realistic vision and imagination which recognizes, prognosticates, and solves new situations before they become problems. While recognizing some limitations, one writer opined:

Engineers are usually well trained in the orderly processes of thinking. They learn to accumulate facts, to arrange and analyze them logically, and to base conclusions and decisions on their findings. This approach becomes instinctive with them.⁴⁶

Another observer believes engineers are capable of manning a company successfully, but he wrote that it "requires considerable development of the man over and above what they are when they receive their diplomas."⁴⁷

IN the final analysis, much depends upon the individual man. "The brilliant engineering students," a professor wrote, "are blessed with the greatest gift of the college student, a fine abstract intelligence, and they find little trouble in any branch of study."⁴⁸ But there is no way of know-

ing whether brilliant or average engineers have, or may, become regulatory helmsmen. Naturally, though, the ordinary engineering student is more interested in his professional courses than in cultural and humanistic backgrounds. Many scientific schools confine their curricula to fundamentals, claiming that society should provide their graduates the temporal supplement to their vocational instruction.⁴⁹ It may be a weakness that American education fails to train a class of engineer economists such as France produces today. One authority has suggested to the writer, however, that a sharp distinction exists between the engineer and the technician. The former, he says, is "a technician with a cost consciousness"—an offspring of a technician and an economist. Such a combination certainly would be ideal for commissioners.

In reply to the argument that engineers from industry are too prejudiced to serve judiciously on a regulatory tribunal, it is submitted that ample technical talent is available from the staffs of national and state agencies. These engineers are less amenable to the views of utility management. In fact, appointing authorities have had great success in elevating staff engineers to positions of administrative responsibility.⁵⁰ The presence of scientific men in top posts is a tribute not only to the men but also to their professions. If engineers show mediocre aptitude for metaphysical thinking, it may be a compliment to the profession.

IN the opinion of Dr. Herbert B. Dorau, professor of economics at New York University, enlightened and experienced engineers are most valuable as commis-



Are Engineers More "Agreeable"?

"THE argument that three or more members of a commission are better than one so that various views will be reflected in a composite agency loses some of its force where engineers are concerned. Whereas reputable economists, sociologists, and lawyers will disagree within their own fields of specialization, expertise in the mechanical fields is less often subject to wide variance. Hence, a hypothesis is posited that the services of engineers are not required at the summit, because their vocational conclusions do not fluctuate like those of members of the less exacting professions. Engineering cleavages regarding regulation are liable to center on statutory interpretation, which brings attorneys into the picture."

sioners. In his appearances as a practitioner before numerous regulatory agencies, the professor has found engineer commissioners more susceptible to non-engineering considerations than other professional-origin groups among commissioners are to professional areas foreign to their primary professional preparation. They are, in his opinion, more liberal than accountants, yet not allergic to the mathematical expression of relationships, and often have a greater receptivity to the nature of sound economic standards than only generally trained economists; they are less dogmatic than accountants, and are in better positions to employ and apply the materials normally presented in rate cases than those prepared in the liberal arts.

The engineer is in a better position to

absorb and integrate accounting, economics, and law with his own technical preparation than those experts can integrate his specialty. "Get them over their difficulty of understanding the difference between economy and efficiency," he says, "they are capable of arriving at a sound economic judgment, and thus make able commissioners."⁸¹ This opinion also carries over to Professor Dorau's experience with graduate students in public utilities whom he has taught for more than a quarter of a century. It does not apply to the inexperienced person trained only in technology.

A REASONED opinion prevails that the technological engineer is not a political leader or an apt administrator capable of displaying the implicit and explicit

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qualities essential for a commissioner-ship.⁵² People disagree on the bases for this opinion; with some it is merely an educated hunch. One hypothetical case—the application of atomic energy for power—shows limitations on the desirability of average engineers for seats at the throttle. A decision to use atomic power in competition with, or as a substitute for, fossil fuel energy would involve many tangible and intangible variables. The engineer, whose occupational training often is inimical to value judgments which determine expediency, would be likely to base his decision solely on cold efficiency. His approach would be akin to that of the mathematician who has specialized in the measurement of economic factors to verify an economic hypothesis.

BUT a wider outlook than that of any single profession would be involved. Many important political sequences and consequences would be more crucial than efficiency alone. First would be costs. A wise decision would have to consider the alternatives of unemployment for coal miners, with serious political, economic, and social implications. Business and banks, looking at the issue from the legal, commercial, and investment standpoints, would be entitled to highly relevant consideration. Calculated risks might have to be taken; future need for reverting from a peace to a war economy would be another contingency. Competitive power systems or government monopoly would invoke another major policy decision requiring a broader gauge of cogitation than that of slide-rule efficiency. While services and costs would be significant, their related effects on the political system should help

to shape ultimate preferred policies. In short, the engineering contribution would have to be seen in relation to all-inclusive concepts and dynamic ideas; perfunctory technical efficiency would have to be geared to trend thinking. A momentous decision such as this would be made, to be sure, by legislative authority. However, the commission would contribute. Its planning, advisory, and liaison functions with the President and Congress would be channels for the expert agency to enhance the formulation of national policy.

THE argument that three or more members of a commission are better than one so that various views will be reflected in a composite agency loses some of its force where engineers are concerned. Whereas reputable economists, sociologists, and lawyers will disagree within their own fields of specialization, expertise in the mechanical fields is less often subject to wide variance. Hence, a hypothesis is posited that the services of engineers are not required at the summit, because their vocational conclusions do not fluctuate like those of members of the less exacting professions. Engineering cleavages regarding regulation are liable to center on statutory interpretation, which brings attorneys into the picture.

The contention that experts belong on the staff but not on top of commissions has an element of logic. The experience in the state of Maine is symptomatic. When the public utilities commission was instituted, the governor, a lawyer, wanted to select three attorneys for commissioners. The Executive Council, however, which is charged with the duty of ratify-

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ing nominations, took the view that two lawyers should be the maximum. The councilors insisted, in view of the engineering tasks confronting the new commission, that an engineer be placed thereon. But the governor and council shortly thereafter repudiated their policy. In practice, the engineer commissioner showed extreme confidence in his own judgment as an engineer; he was the expert. He would not follow testimony of engineer witnesses at hearings. That was disregarded in favor of his own predilections and ideas. Consequently, the engineering aspects of state regulation were relegated to staff status. The appointing authorities decided upon a businessman to complete the tribunal; later they changed temporarily to three attorneys. The significance of this case depends largely upon whether the behavior of the particular commissioner is typical of engineers as a class.

BUT the converse of providing the engineering functions of regulations on the staff is fraught with difficulties, particularly if none of the commissioners can comprehend the engineering details. A commission of laymen or nonengineers is liable to accept, or at least to weight heavily, the recommendations of the scientific staff, because the commissioners cannot evaluate the staff conclusions. Any feeble attempts would constitute confused thinking. A commissioner with a scientific background may understand the engineering phases. This, however, may not be sufficient to contradict, or substitute, top ideas for those of the staff expert, if such ever be desirable. In yet another way staff engineering may not be co-ordinated adequately at discretionary policy levels. Staff

engineers are assigned considerable field work—not only routine but occasionally of weighty magnitude which may penetrate the peripheries of planning.

Legally, commissioners are responsible for the ingredients and the end product. In practice, however, some engineers, especially the careerists, are the experts in the field; their opinions sometimes constitute an iron law. At least they establish a rebuttable presumption throughout the commission and in the courts. This situation exists in several state agencies and in some federal ones whose engineers operate from regional offices. This kind of engineering synthetics fails to give the technical aspects of regulation a proper taxonomy at the administrative policy-making level. The staff engineer's work then constitutes an engineering insularity—a lack of cohesion of the component functions of the substance of regulation from staff to top echelon. Thus, staff opinion filters up and influences, sometimes unduly, ultimate commission policy.

AN opinion on this staff dilemma of a practitioner of many years' standing is revealing. Its importance is enhanced because this engineer commissioner, who prefers to remain anonymous, has served both as a staff member and as a commissioner. He wrote the author:

During my first several years on the . . . commission my engineering training was of considerable value in so far as the oil and gas division was concerned, particularly since I had a number of years' previous experience working as a conservation engineer both for the . . . commission and the federal government. In a number of cases I

ENGINEERS AS REGULATORY COMMISSIONERS

would actually do or supervise the engineering work for the commission, but as our engineering staff has been improved and enlarged after the problems with which we are confronted have become enormously more complex, I have done less and less engineering work myself and rely more on the recommendations and findings of the staff.

In retrospect, I believe that the greatest contribution which I have made has been in the realm of attracting better men for our key positions, persuading the legislature to pay better salaries, and then delegating responsibility to these key men. At this time I consider it far more important to have a capable, experienced petroleum engineer as chief engineer of our oil and gas division than it is to have a petroleum engineer as a member of the commission itself. A commissioner who has an appreciation of the importance of engineering, who is able to seek out and employ competent engineers and then persuade them to remain with the commission, and who would steadfastly back them up in their recommendations, and fight with the legislature for better salaries for them, would render greater service regardless of whether he himself were technically trained or not. The question I have not been able to answer in my own mind is whether you need to be an engineer to appreciate fully the value of engineering services to regulatory bodies and also . . . to analyze the work of the staff engineers to determine which engineers are the best qualified for promotion and greater responsibility.

[For] an appointive commission with a competent, experienced staff who make a career of public employment to administer the policies of the commission . . . I believe the engineer can render the greatest service on the staff level rather than on the commission level. However, in complete frankness, I must acknowledge that my secret dream is that another engineer, preferably one who has had years of experience with the . . . commission, will be available to take my place as commissioner when the time comes for me to leave.

THE present writer applauds this comment of Don K. Price: "At some point in the process of studying and deciding on any social problem the boundaries of expert knowledge end, and the realm of responsible judgment begins."⁸⁸ Mr. Price further observed:

. . . The engineer and the administrator provide an essential layer in the pyramid of government, below the peak of political authority, and above the level at which science must operate. In application to practical affairs the sciences as such have no common denominator. In a physical sense the engineer provides the common denominator; in a policy sense, the administrator.⁸⁴

This article recognizes that many engineers are highly intelligent and objective, and that some possess, often as specific individuals, keen perception and sure common sense. When given high responsibility on a quasi-judicial tribunal, they rise to the occasion and cast aside past professional biases. The writer is acquainted

PUBLIC UTILITIES FORTNIGHTLY

with some of them in regulation. But others cannot, or will not, overcome their prejudices. Unfortunately, many engineers seem less versatile than lawyers; they are inept at manipulating people; executive direction and public administration are not their strong fortes.⁵⁵

THERE are plenty of exceptions to these hypotheses. Several well-balanced, levelheaded, and public-spirited engineers are now serving as commission-

ers; another extremely able engineer commissioner for many years retired a few years ago. The "case" for the ordinary engineer commissioner, however, rests upon his capacity to contribute impersonal and uncompromising efficiency in the sphere of his professional competence to regulatory policies. This certainly is a valuable asset for a staff member; but it is arguable and by no means clear that such an ingredient is a proper one at the administrative policy-making level.



Footnotes

⁵² The writer recognizes, of course, that these alternatives are resolved by duly enacted and promulgated legislation. However, sufficient administrative discretion often remains with the commissioners that they can favor their own inclinations and still adhere to the general legislative mandate.

⁵³ Federal Power Commission v. Hope Nat. Gas Co. (1944) 320 US 591, 51 PUR NS 193.

⁵⁴ Harold D. Lasswell and Myres S. McDougal, "Legal Education and Public Policy," *Yale Law Journal*, March, 1943, p. 221.

⁵⁵ "... between potentiality and accomplishment there is, in social dynamics, a broad gulf that must be spanned by social knowledge and technique." Marshall E. Dimock, *Free Enterprise and the Administrative State* (University of Alabama Press, 1951), p. 20. For a profound and enlightening discussion of types of efficiency, see "The Efficiency Concept" in *Ibid.*, pp. 125-148.

⁵⁶ Edward S. Robinson, *Law and the Lawyers* (New York, 1935), p. 9.

⁵⁷ D. B. Steinman, "The Engineer—A Parable" *The Journal of Engineering Education*, June, 1952, p. 489.

⁵⁸ Jerome Frank, *Courts on Trial* (Princeton, 1949), p. 217.

⁵⁹ William B. Given, Jr., *Harvard Business Review*, January-February, 1955, p. 44.

⁶⁰ Trombley, *op. cit.*, p. 238.

⁶¹ *Ibid.*, p. 81.

⁶² Walter LaPierre, "A View of the Social Responsibility of the Engineer," *Columbia Engineering Quarterly*, November, 1951, pp. 18, 43.

⁶³ J. F. Calvert, "It Is Time for the Layman to Come In," *The Journal of Engineering Education*, March, 1954, p. 369.

⁶⁴ New York University Bulletin. College of Engineering, 1956-57, p. 118.

⁶⁵ Harry Rubey, "The Engineer Becomes a Professional Manager," *The Journal of Engineering Education*, January, 1953, p. 338.

⁶⁶ Given, *op. cit.*, p. 44.

⁶⁷ E. G. Bailey, "Can Engineering Graduates Man a Company," *The Journal of Engineering Education*, January, 1953, p. 324.

⁶⁸ A. M. Buchan, "The Non-Engineer Looks at Engineering Students" in *Ibid.*, December, 1951, p. 230.

⁶⁹ "Engineers seem specially prone to accept assignments outside the areas of their competencies. Not long ago a dean of an engineering school epitomized the position when he was asked about the leadership training program in his school; he replied that engineers needed no training in leadership or politics as they picked that up automatically." Charles H. Titus, *The Processes of Leadership* (Dubuque, 1950), p. 80.

⁷⁰ On the versatility of staff engineers; see Eli Winston Clemens, *Economics and Public Utilities* (New York, 1950), p. 410.

⁷¹ Quoted by permission of Professor Dorau.

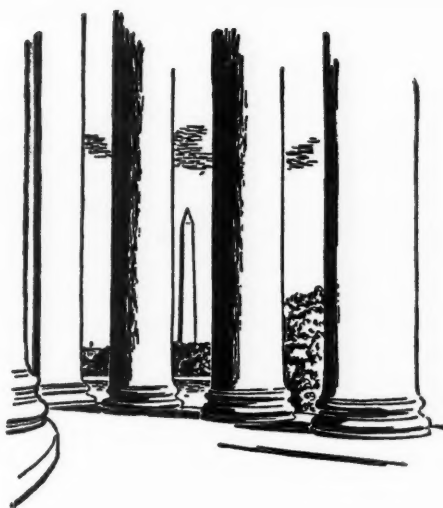
⁷² As chairman of the New Mexico Corporation Commission, Ingram B. Pickett expressed this opinion to the writer: "Most commissions are made up of attorneys and engineers in utility work which may be desirable in theory, but I have not found it to be altogether desirable in practice. It is my opinion that a good, sound businessman with administrative ability and a desire to be fully informed on utility regulations makes a better commissioner..." Quoted by permission of Commissioner Pickett.

⁷³ Price, *op. cit.*, p. 133.

⁷⁴ *Ibid.*, p. 183.

⁷⁵ A notable one is that of Morris L. Cooke, but he seemed motivated more by New Deal philosophy and political administrative activities than that of an engineer.

Washington and the Utilities



Canadian Gas Snag

THE Federal Power Commission in Washington is keeping its ears tuned to Ottawa these days with respect to a proposed export of natural gas from Alberta to the United States. As matters stand, the whole thing is very much up in the air and may stay there until a Royal Commission of Investigation reports in a year or more. Prime Minister Diefenbaker told the House of Parliament on October 31st that all action on the matter would be suspended until the commission reports. He refused to amplify this when questioned by the press later.

This gave rise to somewhat conflicting interpretation. One government spokesman suggested that the Prime Minister only meant that no final decision would be made by the Dominion government as to how much gas Canada could spare for export until the Royal Commission reported. This would indicate that there might be a temporary export permit issued, subject to subsequent modification or review.

There were those, however, who believed that the Prime Minister was reacting to political pressure favoring an em-

bargo on Canadian gas if the government attempted to go ahead with the undertaking of C. D. Howe, former Minister of Trade in the Liberal government. Howe gave notice two years ago that permits for export would be issued. Howe made this commitment to officials of Trans-Canada Pipelines, and it was on the basis of this commitment that Solon Low, leader of the Social Credit party, asked Prime Minister Diefenbaker in the House whether the present government would honor the undertaking made by the former Minister of Trade.

To Low's inquiry, Diefenbaker said "no final answer can be given at this time for the implications of the question bring it clearly within the terms of the study to be made by the Royal Commission." Diefenbaker added:

In order to arrive at a decision the commission will hear evidence and ascertain, as the result of reviewing that evidence, what recommendations it should make. On the basis of the decision then to be made by the government, this matter can finally be answered.

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Mr. Diefenbaker's statement could have important repercussions on the Federal Power Commission's decision on the application of Midwestern Gas Transmission Company for a permit to import 200 million cubic feet of Canadian gas a day from the Alberta fields.

MR. Low, the Social Credit leader, many of whose supporters come from Alberta, said that Mr. Diefenbaker's statement implied a delayed decision which might force United States interests seeking to import Canadian gas to turn to other sources. He said:

That prospective market for Canadian gas might well be gone forever. The statement was a terrific blow at the economy of Alberta, already plagued with an oil surplus.

It is a serious matter when a commitment like this can be repudiated. It is bringing the field of politics too strongly into the field of economics. The Diefenbaker government will take a terrific beating in the West over this.

The view expressed in some political and business circles in Ottawa was that the Prime Minister's statement would encourage interests opposed to Midwestern's application to argue that the FPC was being asked to issue a permit for a hypothetical import, which it had no power to do.

Atom Power Progress Seen

PRIVATE industry will completely take over atomic power and other peaceful uses in the United States within a decade, Lewis L. Strauss predicted in New York city on October 29th. Mr. Strauss, chairman of the Atomic Energy Commission, expressed hope that at that time the commission's rôle would be "limited to assur-

ing uniform safety regulations" and whatever military fields remained uncontrolled by disarmament.

The chief of the atomic agency spoke to a thousand persons at a joint conference dinner of the Atomic Industrial Forum and the American Nuclear Society at the Waldorf-Astoria Hotel. The United States, Mr. Strauss said, is exploring many concepts to find the cheapest, safest, and most reliable method for atomic power, in contrast to Great Britain's faster but narrower development in the face of greater need for power. He appealed against being diverted by Communist propaganda attacks on free enterprise or minor setbacks.

William Strath, one of five members of Britain's Atomic Energy Authority, joined with Mr. Strauss in depicting recent negotiations as expanding Anglo-American co-operation for both defense and scientific advance.

THE American program has ten different power concepts under intensive research and four experimental plants already producing electricity for civilian use, Mr. Strauss said. A commission spokesman added that he referred to reactors at the Argonne National Laboratory in Lemont, Illinois; Fort Belvoir, Virginia; and Santa Susanna and Pleasanton, California. These range from 5,000 kilowatts downward.

Mr. Strauss also said the United States was emphasizing fuels enriched in Uranium 235 content, instead of natural uranium, as offering a greater promise of holding down costs. While avowing a "firm belief" that a completely independent atomic industry would evolve, Mr. Strauss said the commission would build promising types of reactors if industry did not do so "within a reasonable period of time."

WASHINGTON AND THE UTILITIES

EARLIER, in a session at the Plaza Hotel, the Consolidated Edison Company said the estimated cost of its 275,000-kilowatt nuclear plant at Indian Point, New York, had risen to \$90 million. The original estimate had been \$55 million in March, 1955, when the capacity was designed for 236,000 kilowatts. Lee Davenport, president of the Sylvania-Corning Nuclear Corporation, said businesses in atomic work now "invariably indicate losses," despite hope of future profits.

The United States so far has committed 33,000 kilograms of Uranium 235 out of 50,000 set aside by President Eisenhower for foreign programs, reported Clark Vogel, assistant director of international affairs of the AEC. This has been under 39 bilateral research parts and 14 power agreements.

Congressional restrictions "may make it difficult, if not impossible" for the new International Atomic Energy Agency to take up the President's offer of 5,000 kilograms, another speaker said. He was Robert von Mehren, general counsel to the agency's preparatory commission. Von Mehren noted that Congress had required that the agency be charged at least as much as domestic consumers and that the agency would have to charge its customers a price higher than it paid.

On October 28th, R. W. Cook, deputy general manager, reported that the AEC had found private industry "not now ready" to take over the chemical processing of used nuclear fuels.

State Fights Pipeline Merger

THE Oregon public utilities commissioner, Howard Morgan, has filed a "notice of intervention" with the FPC to dispute the proposed merger of Pacific Northwest Pipeline Corporation with the El Paso Natural Gas Company. A letter

detailing Morgan's reasons for "grave doubts" as to the desirability of the proposed consolidation was attached to the formal notice. Prior to that the Oregon attorney general had proposed a motion before a federal district court in Utah in which the El Paso Company was seeking to obtain a dismissal of antitrust proceedings.

Morgan pointed out that Oregon is a relatively small state for natural gas and is "reluctant to acquiesce in any change in the structure subordinating the position of its markets to others which may be more immediately attractive." The utilities commissioner said the primary purpose of the transmission facilities now owned by the Pacific Northwest Pipeline company was to provide natural gas to the available markets in Idaho, Oregon, and Washington. Morgan said:

In view of the lack of federal power jurisdiction to direct pipeline extension or to allocate natural gas among different markets, we feel a real concern that a company in this position may very well choose to sacrifice future Oregon requirements to the opportunity for immediate profit elsewhere.

House Regulatory Probe

THE much-advertised House subcommittee investigation of federal regulatory agencies may become ensnared in politics. The investigation is being undertaken by the House Subcommittee on Legislative Oversight. It will not formally get under way in earnest until next January. But the preliminary preparations already have provoked charges that its approach will have an antibusiness and antiutility bias.

No doubt the distinguished head of the subcommittee staff, Professor Bernard Schwartz, a widely respected legal scholar,

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will make every effort to keep the probe on a constructive track. But with an election year coming up, charges that the federal regulatory commissions have shown favoritism to the industries they regulate—thanks to Eisenhower appointees—are too tempting for the administration's critics in Congress to overlook. Already attorneys representing networks and other regulated industries are fearful that their clients will be made the victims of headline-hunting Congressmen.

Efforts of regulatory commissions to avoid answering a questionnaire sent out by the subcommittee have not been successful, so far. The original request was for information on all gifts from regulated industry to commissioners and their staffs as well as about letters and conversations between them. The Civil Aeronautics Board has only reluctantly agreed to open most of its files to committee investigators.

Members of the Federal Communications Commission have so far refused to answer the questionnaire, and probably will not do so until they can arrange a conference with Subcommittee Chairman Moulder (Democrat, Missouri), now traveling in the Orient. Radio and television networks, unable to meet the October 17th deadline for answering the questionnaire, have been given an indefinite extension of time, and some already have turned over certain information to the subcommittee.

THE outcome of the investigation is likely to depend on the attitude of House Speaker Rayburn (Democrat, Texas), who originated the idea. An attempt to play politics by the majority would almost certainly prevent any constructive results. However, a bona fide probe of regulatory processes might result

in seriously proposed legislation designed to provide tighter congressional control over the activities of the regulatory agencies.

Representative Moss (Democrat, California), a member of the subcommittee, suggested one possible result. "We could decide," said Moss, "the commission-type agency is not the answer, that Congress should go right in and directly control all aspects of their operations." This comment recalls the kind of legislation introduced last year by Pacific Northwest Democratic Senators to curb the powers of the FPC to license hydro projects without congressional approval.

Michigan Atom Plant OK'd

THE Atomic Energy Commission's professional staff has recommended that the Power Reactor Development Company of Detroit be permitted to complete its \$34 million atomic power plant near Monroe, Michigan. Funds for the controversial plant were denied by Congress this year. With the addition of some new safety devices, the AEC staff said that there was reasonable assurance the plant could be constructed and operated without hazard to the health and safety of the public.

The staff also found PRDC "financially qualified" to build and run the reactor which is designed to manufacture steam for generation of electricity and produce plutonium for sale to the AEC. Labor unions—notably the United Automobile Workers—have opposed and still oppose the private project, ostensibly on safety and financing grounds. The staff recommendation, which is only for a license to construct the project, must still be reviewed by the AEC.

Telephone and Telegraph



Mobile Radio Tariffs

THE Justice Department has threatened to reopen issues involved in a "consent decree" under which antitrust proceedings against Bell system relations with Western Electric Company were terminated. This was the department's latest move in its campaign before the Federal Communications Commission to keep the telephone companies out of the newly developing lease-maintenance business for mobile radio equipment service. The department has been contending that entry of the telephone industry into the mobile radio field would lessen competition. It takes the position that the FCC does not have jurisdiction over the Bell system's proposed tariffs but that, in the event the commission decides it does have jurisdiction, antitrust considerations require that the petition be rejected.

In its letter to the FCC early last month, the department stated:

Three factors cast grave doubt upon the commission's jurisdiction to regulate rates for lease and maintenance of equipment and facilities for private mobile communications. First, the final judgment (*e.g.*, the consent decree) presents a bar to the entry of the (telephone companies) into this field in interstate commerce. Second, for the

commission to subject a private business to public rate regulation would be an unwarranted extension of the regulatory concept to an industry which is presently subject to Sherman Act enforcement. Third, it follows that unless the lease and maintenance of equipment and facilities for private mobile communications systems are clearly within the statutory authorization of the commission to regulate rates under Title II of the act, the commission is without jurisdiction; if the leasing and maintenance of activities are not clearly a "communications service," there is no legislative sanction to permit rate regulation.

The telephone industry, including both the Bell system and the independent companies, takes the position that competition would be lessened, not increased, if the industry is barred from the mobile radio field. But the Justice Department is apparently ready to take the whole matter back to the federal district court in which the "consent decree" was entered in January, 1956. Its letter to the FCC adds, however, that "resort to the court may be premature at this time since the tariff has not been approved by the commission." This is interpreted as meaning that if the telephone companies withdraw their proposed

PUBLIC UTILITIES FORTNIGHTLY

tariff filings or if the FCC should reject them, Justice will drop the whole matter. The department's letter pointed out that the court has retained jurisdiction over the decree "for a judicial construction of the final judgment."

Subscription TV

Two companies interested in furnishing home-wired television on a subscription basis have requested cost information from Illinois Bell Telephone Company. The telephone company has been asked what it would cost to provide facilities and other services in connection with wiring homes in the Chicago area for closed circuit home television on a paying basis.

The inquiries came from Siatron and International Telemeter Corporation, which are interested in providing service in Chicago similar to that provided by Telemovies in Bartlesville, Oklahoma.

The Bartlesville operation has been the object of two polls conducted by congressional enemies of toll TV. Representative Celler (Democrat, New York), chairman of the House Judiciary Committee and a bitter opponent of subscription television, has sent questionnaires to Bartlesville subscribers in an attempt to find out how the customers like it, but suggesting that such service is contrary to the public interest. Senator Langer (Republican, North Dakota), a member of the Senate Antitrust Subcommittee, has also tried to find out the public reaction in Bartlesville. Langer mailed 8,500 questionnaires to the town's residents and reports that answers received so far are running heavily against the pay-as-you-see operation.

Langer's office reported that, as of November 3rd, the mail poll showed 1,533 votes against pay-as-you-see, 116 for it, and 204 against pay-as-you-see but for

telemovies. The Bartlesville operation involves a monthly subscription rate of \$9.50 for which subscribers receive 17 first-run movies and 13 older movies a month. Langer intends to introduce legislation in January that would prohibit any kind of pay TV.

THE issues raised by subscription TV will undoubtedly play a large part in any decision by Congress next year to look into the whole scope of radio and television practices. Representative Oren Harris (Democrat, Arkansas), chairman of the House Interstate Commerce Committee, has called for a new look by Congress at radio and television for the purposes of deciding whether the forces of competition are strong enough "to bring about a system of broadcasting which is in the public interest."

Harris recently told a regional conference of the National Association of Radio and Television Broadcasters in Memphis, Tennessee, that important new developments in broadcasting make the competitive issue more and more urgent. Harris pointed to the so-called Barrow report, now before the FCC, which suggests that "the forces of competition have been restrained through present television network practices" and recommends new television network regulatory powers for the FCC.

"Subscription television offers an outstanding opportunity for further concentration of power in the field of broadcasting," Harris said, "and hindsight shows that the commission's efforts to cope with the concentration of power in the hands of the television networks and other multiple station owners have proven unsuccessful."

Harris said the developments that have taken place in the field of communications make it necessary to determine whether "a

new statutory approach" is needed to the problem of distributing available spectrum or frequency space among government and private groups.

TV "Booster Stations"

THE FCC is expected to modify its previous ruling that "on-channel boosters" for television are illegal unless licensed by the commission. The issue has been brought to a head by a protest against the ruling from twelve governors of western states. The governors' group, headed by former Colorado Governor Edwin C. Johnson, contends that a "booster station" is merely a technical extension of the television receiving apparatus similar to a community antenna.

Two years ago, Johnson defied the FCC by ordering a television dealer operating such a booster station to continue operations. As a result of the governors' protest, FCC Commissioner T. A. M. Craven may soon make a recommendation for conciliatory action by the FCC, following some field inspection of booster stations in the West.

Craven is expected to recommend that "on-channel boosters" should not be viewed as transmitters but actually as part of television receivers bringing service to small settlements of homes in deep valleys or other difficult terrain which could not otherwise get normal television reception. If the full commission approves Craven's findings, it will no longer be necessary to license "on-channel boosters" and the controversy can be settled by modifying the former order. It is likely that boosters will probably require some sort of certificate to insure that they are properly installed and operated so as not to interfere with normal TV reception.

Highway Relocation

AMONG the many reports to the recent USITA convention was a summary of legislative action concerning costs of highway relocation. The USITA's highway relocation costs committee reported the enactment of reimbursement laws in 15 states. They were: Idaho, Delaware, Florida, Maine, Minnesota, Montana, Nebraska, New Mexico, North Dakota, Connecticut, Oklahoma, Tennessee, Texas, Utah, and Illinois. Of these 15, Idaho, Montana, Utah, and New Mexico will reimburse utilities for their relocation costs on the interstate system.

Relocation legislation was vetoed in Colorado, Kansas, New York, Rhode Island, Wyoming, and Pennsylvania.

Reimbursement measures were defeated by one of the branches of the legislature, died in committee, or failed of enactment before adjournment in the following states: Arizona, Arkansas, Indiana, Iowa, Maryland, Michigan, Missouri, Ohio, Oregon, South Dakota, Vermont, Washington, West Virginia, Wisconsin, and New Hampshire.

A bill is still spending in Alabama.

In Congress, no action was taken changing the Federal Highway Act. At times, the committee reported, there were rumors that bills would be introduced or amendments offered to the measure. It was stated that these would be brought out on the floor of the House and if adopted would rescind the reimbursement clauses. These proposals did not get beyond the talking stage and no action of this nature was taken.

The committee feels that a good start has been made and that utilities in all states now realize that the federal and state highway program can result in a great expense to them.



Financial News and Comment

By OWEN ELY

Is Current Pessimism over Atomic Power Warranted?

THE cost of building atomic reactors continues to increase, causing some pessimism in the industry. Estimates of increased costs, as recently reported by a *New York Times* reporter, are as shown in table on page 863.

Charles H. Weaver, vice president in charge of atomic activities for Westinghouse Electric, thinks that costs are rising about 5 per cent a year, though some prices have gone up much faster, probably due to redesigning for greater safety. Part of the difficulty is ascribed to the fact that original bids were made by young engineers who knew their atomic science but were insufficiently familiar with power plants.

Some requests for bids were also set up on a slipshod basis, it is said.

The rise in reactor costs has discouraged some of the smaller or newer companies in the atomic field from bidding on entire reactors, and they are now confining their programs to making component parts. Others are cutting back on research and development. *The Wall Street Journal* in its "Atomic Fallout" story of November 1st gave instances of such cutbacks or cancellations, the latter being for smaller reactors, such as those proposed by co-ops and municipalities.

THERE seems to be no doubt that there have been too many newcomers in the industry for the amount of available business. For example, on one former AEC request for bids for a small power plant, some 46 companies expressed an interest in the business. The atomic power equipment business is now "shaking down," according to Dow-Jones, to companies already well-established in building steam-generating equipment, such as GE, Westinghouse, Babcock & Wilcox, etc. However, at least two other companies continue active in the building of reactors—North American Aviation and Nuclear Development Corporation. But even GE is said to have released some employees at its atomic power equipment departments, although it will submit proposals on five foreign atomic plants in the next few months.

DEPARTMENT INDEX

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FINANCIAL NEWS AND COMMENT

W. Kenneth Davis, the AEC's director of reactor development, recently made a reappraisal of the government's program and plans in an address at the Atomic Industrial Forum October 30th. He called attention to the very high costs of small atomic reactors, running up to \$3,400 per kilowatt-hour for one 5,000-kilowatt government reactor (HRE-2 type). He also stressed the importance of concentrating for the present on the "water" class of reactor.

If we are anxious to have commercially competitive atomic power by 1963-64, "it does not now appear likely that such reactors as the aqueous homogeneous, fast breeder, liquid metal fueled, sodium-cooled graphite, or even more advanced concepts, such as liquid plutonium, can be successfully exploited commercially by so early a date." However, he favored continuing with the construction of these more advanced types.

CAPITAL costs are lower for water reactors, but Mr. Davis thinks even these costs are too high. However, he made the interesting disclosure that kilowatt-hour costs may be automatically reduced by larger-than-anticipated output. Demonstrations may indicate that water plants of the type now being developed can produce two or three times as much as their original rating, with some slight

modification of plant design. From operation of a new experimental boiling water reactor, he states, "we think the margin for increased power production is four times design power level." Confirmation of this comes from George White, general manager of GE's atomic power equipment department, and Samuel Untermeyer II, operations manager at the small California plant built by GE and recently put in operation by Pacific G&E, who state that while further tests are being made, the plant may be able to turn out 10,000 kilowatts or double its rating. If this is true, it would reduce the capital cost per kilowatt to only \$300—very reasonable for such a small plant and only about twice the kilowatt cost of a large steam-generating plant.

MR. DAVIS thinks the first economic reactor will probably have a capacity of at least 300,000 kilowatts. (Consolidated Edison's rated capacity will be 275,000 and Commonwealth's 180,000.) Further advantages would be gained by having several units in one station with a total capacity of a million kilowatts or more. Experience in constructing reactors will bring economies through simplification, use of cheaper materials, and elimination of present experimental instrumentation.

Reductions must also be made in operating costs, which include cost of nu-

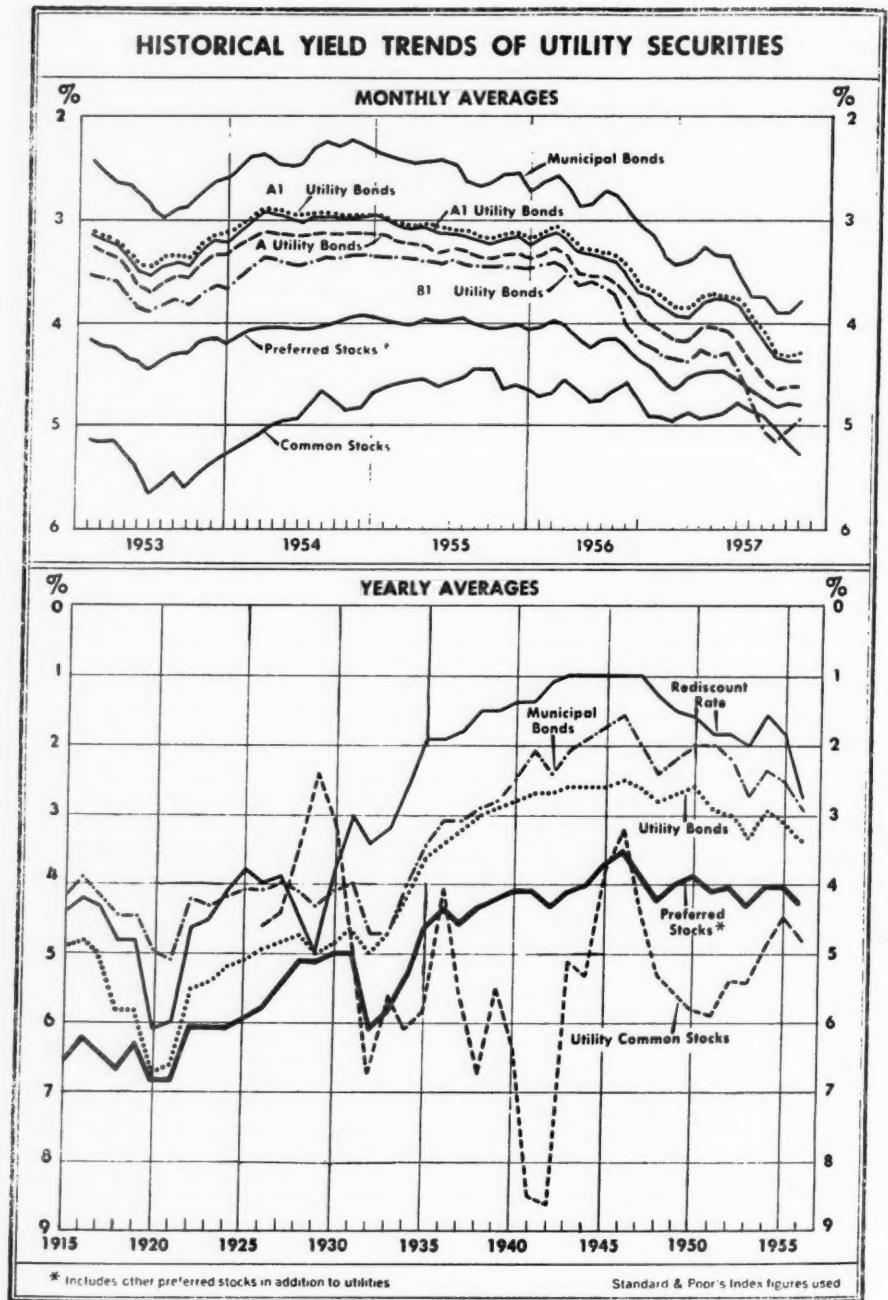


<i>Proposed Reactor for</i>	<i>Bidder</i>	<i>Millions of Dollars</i>	
		<i>Original Estimate</i>	<i>Present Estimate</i>
Elk River, Minnesota	Amer. Machine & Foundry	\$ 8.4	\$11.8
Wolverine Electric Co-op. (Grand Rapids, Mich.)	Foster Wheeler Corp.	5.5	14.4
Consolidated Edison	Babcock & Wilcox, etc.	55.0	90.0*
Yankee Atomic Electric		35.0	41.0
Power Reactor Development—Detroit Edison			**
Commonwealth Edison Group	General Electric	45.0	65-90?

*Capacity increased from 236,000 kilowatts to 275,000 kilowatts.

**An increase of about 10 per cent is anticipated.

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clear fuel, fuel element fabrication, chemical processing, waste disposal, plant operation and maintenance. All of these methods are being explored in reactor projects now under way, but it may take ten or fifteen years to make substantial progress.

Eventually, he foresees, "decreases in fuel material costs by a factor of two, decreases in fuel fabrication costs by a factor of four, and increases in useful life by a factor of eight do not appear out of reason in the long run as compared with the first Shippingport PWR core."

SIR JOHN COCKCROFT, director of the British Atomic Energy Research Establishment, recently told a conference at Arden House (New York) that "we expect nuclear power to cost about 10 per cent more than coal power in 1960, to reach parity about 1963, and to be 30 per cent cheaper than coal power by 1970." The cost in 1960 would be about 8 mills per kilowatt-hour and chiefly because of higher construction wages U. S. cost would be about 50 per cent higher or around 1.2 cents, he stated. The British continue very optimistic on their experimental work with fusion, but Sir John indicated that "at least another stage must be reached before a practical and economic fusion reactor could be built."

One reason for pessimism over prospects for atomic power has been the continued concern over dangers of radioactive leakage or fall out, and the resulting menace to public health. Certain labor unions have attacked the plans for the big Michigan reactor, construction of which is under way, on the grounds of inadequate safety provisions. A recent British atomic mishap may have repercussions in this country.

On October 10th, an atomic pile at Windscale (a military experimental plant

located near the Calder Hall atomic power plant) accidentally overheated and for a period of nearly ten hours radioactive iodine vapor and some oxidized uranium particles escaped into the air before the fiery atomic receptacle was brought under control by the old-fashioned method of dousing it with water. (Calder Hall scientists spent some anxious hours figuring out whether it would be safe to do this.)

WHILE the Atomic Energy Authority at London issued a reassuring statement that there was no evidence of a public hazard, the police roused sleeping farmers several days later to warn them to stop using the milk from their cows because it was radioactive. Later the ban was extended to 600 dairy farms covering an area of 200 square miles—this was later reduced by one-half.

Farmers in the locality had long complained that the fertility of their cattle had been affected.

It seems unlikely that the peculiar combination of circumstances which produced this accident in a military experimental plant could occur in an efficiently operated utility plant, but nevertheless the episode is not helpful. There are about half a million Americans now working with radioactive substances and while the safety record is remarkable as compared with other lines of activity, two or three recent accidents have attracted attention. The SEC has passed a number of safety regulations and Chairman Strauss has appointed an advisory committee of state officials to consult with the commission on regulations concerning safety and health factors of private atomic energy activities. Only three states—New York, Pennsylvania, and Texas—thus far have set up regulations that are considered adequate in Washington.

SEC's 60-day Embargo on Issuing Data Except by Prospectus

THE SEC on October 8th issued a 7-page release, No. 3844, under the Securities Act of 1933, regarding "Publication of Information Prior to or After the Effective Date of a Registration Statement."

While the SEC recognizes that the trend toward disseminating more information to security holders and the public with respect to important business and financial developments should be encouraged, it states that it is necessary that "corporate management, counsel, underwriters, dealers, and public relations firms recognize that the Securities acts impose certain responsibilities and limitations upon persons engaged in the sale of securities and that publicity and public relations activities under certain circumstances may involve violations of the securities laws and cause serious embarrassment to issuers and underwriters in connection with the timing and marketing of an issue of securities."

Summarizing, the release indicates that during the period after the filing of a new security issue and before the effective date (usually twenty days) no written communication offering the security may legally be sent through the mails other than a prospectus; and for forty days after the initial offering date the prospectus must precede or accompany any other sales literature.

Thus, for a 60-day period¹ company representatives, together with investment bankers or dealers who are underwriting the issue or participating in its distribu-

¹Even the 60-day period may not be adequate—see instances in the "Examples" cited in the release where the SEC objected to the distribution of special material prior to the registration of a new issue.

tion, are warned not to engage in any publicity or public relations activities which could be interpreted as efforts to aid the sale of the security. Presumably exceptions would be made of regular interim earnings statements or other routine news items issued to newspapers or financial services. Whether the company could issue summaries of current developments and future plans, such as are sometimes contained in quarterly letters to stockholders, might be open to some question until the matter is further clarified. (See Example #8 in the release.)

IN any event, it seems likely that speakers before the 21 Societies of Security Analysts may have to bar press representatives, and avoid distribution of written copies of their addresses, if the talks (usually scheduled long in advance) happen to fall within a 40-day period in connection with some security offering. It is possible, of course, that the SEC might be willing to clear such material for distribution, in advance of the date of delivery of the talk. Or perhaps an exception could be made for registration of Aa and Aaa bond issues, which after all are affected only by money conditions.

The release gives ten "examples" of cases which have come to the attention of the SEC in the past where the dissemination of brochures, news stories, advertisements, etc., were in conflict with its regulations regarding the use of prospectuses.

Presumably, the new release is intended to clarify the situation and tighten up the regulations. Over the past year or so, the commission has on several occasions made specific objections to the issuance of earnings projections by utility officials during the period when a security issue was in registration; i.e., at a "due diligence" meeting, etc. Such forecasts, if

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issued at all, must presumably be released before or after any 40-day period.

Most of the large Wall Street houses are involved either as underwriters or dealers in new offerings, particularly those

of utility companies. Unless willing to go to the expense of sending copies of the prospectus to its entire mailing list—which may include many thousands of names—any such firm will apparently be barred



OCTOBER UTILITY FINANCING

PRINCIPAL PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Date	Amount (Mill.)	Description	Price To Public	Under- writing Spread	Offer- ing Yield	Aver. Yield For Securities of Similar Quality	Moody Rating	Success Of Offer- ing
<i>Bonds and Debentures</i>								
10/1	\$17.0	Gulf St. Util. 1st 4½ 1987	101.50	.88C	4.78%	4.32%	Aa	d
10/4	25.0	Columbia Gas System Deb. 5s 1982* ..	100.00	1.07C	5.00	4.59	A	d
10/15	10.0	Cal.-Oregon Pwr. 1st 5½s 1987*	101.93	.69C	5.00	4.62	A	a
10/16	8.0	Atlanta Gas Lt. 1st 5½s 1982*	102.49	1.05C	4.95	4.62	A	d
10/16	35.2	Consumers Pwr. Conv. Deb. 4½s 1972	100.00	**N	4.63	4.32	Aa	e
10/17	8.0	Penn. Power 1st 5s 1987	100.78	.75C	4.95	4.62	A	d
10/23	60.0	Consol. Edison 1st 5s 1987	100.78	.64C	4.95	4.32	Aa	a
10/24	8.0	Pub. Serv. of N. H. 1st 5½ 1987*	101.12	.98C	5.30	4.63	A	b
<i>Preferred Stocks</i>								
10/1	16.0	Northern Nat. Gas 5.80%*	100.00	2.50N	5.80	—	—	a
10/2	8.0	Columbus & So. Ohio Elec. 6%*	100.00	2.00N	6.00	—	—	a
10/9	25.0	Commonwealth Edison 5.25%	100.00	2.00N	5.25	—	—	a
10/10	2.8	Rockland Lt. & Pr. Conv. 5½%	100.00	2.75N	5.75	—	—	f
10/31	7.5	San Diego G. & E. 5.60% (\$20 par) ..	20.00	.40N	5.60	—	—	a
<i>Common Stocks</i>								
10/8	5.5	Cal.-Oregon Power	27.25	1.35N	5.87%	—	8.1	a
10/24	3.9	Public Service of New Hampshire ..	15.00	.85N	6.67	—	9.5	a

*Cash sinking fund. **Underwriters' commission 50 cents on all shares plus 25 cents on unsubscribed shares. N—Negotiated. C—Competitive. a—Reported well received. b—Reported fairly well received. d—Reported that the issue sold slowly. e—Common stockholders were offered the right to subscribe at the rate of \$100 debenture for each 25 shares. Debentures are convertible into common from February 1, 1958, at \$47 per share. f—Offered to stockholders on a 1-for-10 basis.

NEW MONEY FINANCING

<i>Electric Companies</i>		
Bonds	—Sold to Public	\$103,326,000
	—Sold Privately	90,557,000
	—Offered to Stockholders	34,981,000
Preferred	—Sold to Public	39,690,000
	—Sold Privately	1,000,000
	—Offered to Stockholders	2,732,000
Common	—Sold to Public	8,900,000
Total		\$281,186,000
<i>Gas Companies</i>		
Bonds	—Sold to Public	\$ 32,848,000
	—Sold Privately	12,000,000
Preferred	—Sold to Public	15,600,000
	—Sold Privately	3,000,000
Total		\$ 63,448,000
Total, Electric and Gas		\$344,634,000

Source, Irving Trust Company

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from commenting on or describing any company which may be issuing securities, during the 40-day period involved.

THE SEC does not explain why a period of forty days after the initial sales effort is prescribed (in addition to the registration period). As a possible alternative, could not the commission receive from the issuing company, or from the head of the underwriting group, a certificate that the offering had been completed and the selling group dissolved—whereupon this date could be substituted for the end of the 40-day period? This would require issuance of a daily calendar by the SEC specifying the security offer-

ings subject to the embargo at any given date.

SUCH a reference calendar would be of value to Wall Street houses and to corporate managements even on the basis of the 40-day period. It would be of particular value to utility companies, many of which issue securities two or three times a year.

For each of these offerings, provided they do not overlap, there would be a "silence period" of about two months during which both the company and its bankers would have to be careful not to issue written material which might be in conflict with the SEC rule.



DATA ON ELECTRIC UTILITY STOCKS

Annual Rev. (Mill.)		10/30/57 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% In- crease	Aver. Incr. In Sh. Earnings 1951-56	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
\$268	S American G. & E.	34	\$1.60m	4.7%	\$2.12Jy	5%	9%	16.0	75%	35%
46	O Arizona Pub. Ser.	23	1.12	4.9	1.85Se	13	13	12.4	61	31
11	O Arkansas Mo. Power	15	1.00c	6.7	1.33Je	5	10	11.3	75	31
32	S Atlantic City Elec.	29	1.30	4.5	1.71Au	10	10	17.0	76	29
132	S Baltimore G. & E.	33	1.80	5.5	2.25Je	D2	8	14.7	80	41
7	O Bangor Hydro-Elec.	30	1.90	6.3	2.47Se	D5	8	12.1	77	35
5	O Black Hills P. & L.	22	1.44	6.5	2.18Jy	2	1	10.1	64	27
99	S Boston Edison	46	2.80	6.1	3.45De	1	2	13.3	81	50
21	A Calif. Elec. Power	13	.76	5.8	.96Je	8	16	13.5	79	36
21	O Calif. Oreg. Power	28	1.60	5.7	2.20Au	NC	5	12.7	73	33
8	O Calif. Pac. Util.	26	1.60	6.2	2.31Je	3	6	11.2	65	30
63	S Carolina P. & L.	23	1.20	5.2	1.79Se	3	2	12.8	67	42
28	S Cent. Hudson G. & E.	15	.80	5.3	1.00Je	D9	10	15.0	80	38
21	O Cent. Ill. E. & G.	26	1.60	6.2	2.35Je	—	11	11.1	68	33
35	S Cent. Ill. Light	45	2.60	5.8	3.88Se	D6	8	11.6	67	41
51	S Cent. Ill. P. S.	27	1.60	5.9	2.36Se	D3	12	11.4	68	38
13	O Cent. Louisiana Elec.	30	1.60	5.3	2.01Je	D4	8	14.9	80	32
35	O Cent. Maine Power	20	1.40	7.0	1.71Se	4	4	11.7	82	34
128	S Cent. & South West	38	1.60	4.2	2.34Se	2	15	16.2	68	35
12	O Cent. Vermont P. S.	14	1.00	7.1	1.10Jy	D14	1	12.7	91	31
114	S Cincinnati G. & E.	27	1.50	5.6	1.95Je	D10	7	13.8	77	38
7	O Citizens Util. "B"	13	.90a	7.0a	1.16Je	7	10	11.2	78	42
111	S Cleve. Elec. Illum.	34	1.60	4.7	2.47Je	D9	8	13.8	65	49
4	O Colo. Cent. Power	25	1.32	5.3	1.49Je	D9	8	16.7	80	33
48	S Columbus & S. O. E.	28	1.60	5.7	2.45Je	13	5	11.4	65	33
360	S Commonwealth Ed.	38	2.00	5.3	2.81Je	3	8	13.6	71	44
11	A Community Pub. Serv. ...	24	1.30	5.4	1.86Je	10	15	12.9	70	52
2	O Concord Elec.	43	2.40	5.6	2.67De	D1	1	16.1	90	64
71	O Conn. Lt. & Pr.	17	1.00	5.9	1.15Se	D12	7	14.8	87	39
23	O Connecticut Power	38	2.25	5.9	2.83Je	6	4	13.4	79	41
522	S Consol. Edison	42	2.40	5.7	3.31Se	3	8	12.7	73	40
208	S Consumers Power	44	2.40	5.5	3.22Se	D3	6	13.7	75	47

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Annual Rev. (Mill.)	(Continued)	10/30/57 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% In- crease	Aver. Incr. In Sh. Earnings 1951-56	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
74	S Dayton P. & L.	42	2.40	5.7	3.09Au	NC	8	13.6	78	43
39	S Delaware P. & L.	46	1.80	3.9	2.77Se	18	10	16.6	65	35
237	S Detroit Edison	38	2.00	5.3	2.60Se	14	8	14.6	77	44
130	A Duke Power	27	1.20	4.4	2.02Je	10	20	13.3	60	52
95	S Duquesne Light	33	2.00	6.1	2.43Je	D1	4	13.6	82	35
31	O East. Util. Assoc.	29	2.20	7.6	2.31Jy	D11	0	12.6	95	34
2	O Edison Sault Elec.	16	.80	5.0	1.13Je	D1	13	14.2	71	42
12	O El Paso Elec.	21	1.00	4.8	1.38Jy	10	8	15.2	72	41
12	S Empire Dist. Elec.	18	1.20	6.7	1.55Se	3	3	11.8	77	39
5	O Fitchburg G. & E.	46	3.00	6.5	3.65De	4	3	12.6	82	45
49	S Florida Power Corp.	51	1.80	3.5	2.78Se	1	19	18.3	65	36
110	S Florida P. & L.	50	1.28	2.6	2.97Se	25	25	16.9	43	38
189	S General Pub. Util.	35	2.00	5.7	2.94Je	D2	12	11.9	68	42
6	O Green Mt. Power	14	1.00	7.1	1.13Je	D8	7	12.4	88	36
56	S Gulf States Util.	36	1.60	4.4	2.31Se	5	14	15.6	70	34
22	A Hartford E. L.	52	3.00	5.8	4.13Je	D6	12	12.6	73	49
5	O Haverhill Elec.	34	2.40	7.1	2.67De	2	—	12.7	88	100
21	O Hawaiian Elec.	45	2.50	5.6	3.04Se	D17	—	14.6	82	36
78	S Houston L. & P.	52	1.60k	3.1	2.70Se	D6	20	19.3	59	46
8	O Housatonic P. S.	20	1.40	7.0	1.43De	1	—	14.0	98	53
27	S Idaho Power	31	1.50	4.8	2.23Jy	NC	7	13.9	67	32
82	S Illinois Power	26	1.50	5.8	1.87Au	D5	6	13.9	80	37
43	S Indianapolis P. & L.	27	1.50	5.6	2.07Je	3	5	13.0	72	38
20	S Interstate Power	124	.80	6.4	.90Se	D15	3	13.9	89	30
33	O Iowa Elec. L. & P.	25	1.50	6.0	2.00Se	D12	10	12.5	75	31
39	S Iowa-Ill. G. & E.	29	1.80	6.2	2.47Au	D1	3	11.7	74	43
37	S Iowa Power & Lt.	26	1.60	6.2	2.07Je	3	2	12.6	77	33
32	O Iowa Pub. Serv.	14	.80	5.7	1.09Se	D4	5	12.8	73	35
13	O Iowa South. Util.	20	1.28	6.4	1.79Se	D1	8	11.2	72	37
56	S Kansas City P. & L.	34	2.00	5.9	2.86Au	3	8	11.9	70	34
30	S Kansas G. & E.	27	1.32	4.9	2.34Se	9	12	11.5	56	29
45	S Kansas Pr. & Lt.	23	1.30	5.7	2.08Se	6	9	11.1	63	31
37	O Kentucky Util.	24	1.28	5.3	2.09Je	1	9	11.5	61	34
7	O Lake Superior D. P.	20	1.20	6.0	1.60Je	D4	6	12.5	75	38
6	O Lawrence Elec.	26	1.60	6.2	1.46De	D22	D	17.8	109	63
98	S Long Island Ltg.	20	1.20	6.0	1.43Se	D8	6	14.0	84	32
52	S Louisville G. & E.	25	1.10	4.4	1.68Je	D14	4	14.9	65	41
8	O Lowell Elec. Lt.	45	3.00	6.7	3.37De	D8	D	13.4	89	58
9	O Madison G. & E.	43	1.80	4.2	4.28Se	NC	11	10.0	42	50
4	A Maine Pub. Serv.	15	1.12	7.5	1.53Au	56	3	9.8	73	33
5	O Michigan G. & E.	46	1.60b	6.5b	4.05Je	—	14	11.4	40	37
159	S Middle South Util.	33	1.70	5.2	2.52Se	19	4	13.1	67	34
28	S Minnesota P. & L.	27	1.60	5.9	2.44Se	18	6	11.1	66	36
2	O Miss. Valley P. S.	29	1.40	4.8	2.15Au	D5	3	13.5	65	31
12	A Missouri Pub. Serv.	13	.72h	5.5	.97Se	D7	20	13.4	74	33
6	O Missouri Util.	20	1.36	6.8	1.85Se	D2	2	10.8	74	32
39	S Montana Power	43	2.00	4.7	3.72Se	6	6	11.6	54	37
142	S New England Elec.	15	1.00	6.7	1.17Je	D3	0	12.8	85	35
44	O New England G. & E.	15	1.05	7.0	1.46Se	D6	5	10.3	72	42
45	O New Orleans P. S.	45	2.25	5.0	2.74Jy	6	0	16.4	82	38
2	O Newport Elec.	15	1.10	7.3	1.23Je	D7	4	12.2	89	30
83	S N. Y. State E. & G.	32	2.00	6.3	3.05Se	4	8	10.5	66	36
244	S Niagara Mohawk Pr.	28	1.80	6.4	1.86Se	19	4	15.1	97	33
81	O Northern Ind. P. S.	35	2.00	5.7	3.02Se	5	7	11.6	66	35
139	S Nor. States Power	15	.90	6.0	1.21Se	1	8	12.4	74	35
9	O Northwestern P. S.	15	1.00	6.7	1.34Se	D10	3	11.2	75	26
129	S Ohio Edison	46	2.64	5.7	3.62Se	D3	9	12.7	73	40
48	S Oklahoma G. & E.	38	1.80	4.7	2.49Se	3	9	15.3	72	36
15	O Otter Tail Pr.	23	1.60	7.0	2.17Jy	D5	7	10.6	74	38
471	S Pacific G. & E.	45	2.40	5.3	3.32Je	D5	13	13.6	72	34
48	O Pacific P. & L.	27	1.60	5.9	2.03Au	12	8	13.3	79	29

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Annual Rev. (Mill.)	(Continued)	10/30/57 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% In- crease	Aver. Inc. In Sh. 1951-56	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
129	S Penn Power & Lt.	42	2.40	5.7	3.31Au	1	11	12.7	73	28
225	S Phila. Elec.	36	2.00	5.6	2.47Je	D2	6	14.6	81	43
35	O Portland Gen. Elec.	22	1.20	5.5	1.68Au	—	6	13.1	71	36
64	S Potomac Elec. Pr.	21	1.20	5.7	1.58My	2	8	13.3	76	39
83	S Pub. Serv. of Colo.	38	1.80i	4.7	2.79Je	9	8	13.6	65	38
300	S Pub. Serv. E. & G.	29	1.80	6.2	2.29*Se	D4	—	12.7	79	37
75	S Pub. Serv. of Ind.	35	2.00	5.7	2.66Se	9	4	13.2	75	33
29	O Pub. Serv. of N. H.	15	1.00	6.7	1.47Se	15	13	10.2	68	32
12	O Pub. Serv. of N. M.	15	.80	5.3	1.11Je	4	7	13.5	72	37
25	S Puget Sound P. & L.	22	1.36	6.2	1.75Je	10	10	12.6	78	61
58	S Rochester G. & E.	27	1.60	5.9	2.23Se	—	10	12.1	72	35
19	O Rockland L. & P.	17	.90	5.3	1.05De	9	11	16.2	86	30
8	S St. Joseph L. & P.	22	1.40	6.4	2.02Se	13	7	10.9	69	35
51	S San Diego G. & E.	18	.96	5.3	1.41Jy	D10	6	12.8	68	40
8	O Savannah E. P.	18	1.00	5.6	1.21Jy	D10	4	14.9	83	30
9	O Sierra Pacific Pr.	21	1.20	5.7	2.01Au	35	14	10.4	60	27
195	S So. Calif. Edison	47	2.40	5.1	3.09Se	D3	3	15.2	79	35
43	S So. Carolina E. & G.	21	1.10	5.2	1.46Au	4	20	14.4	75	36
7	O Southern Colo. Pr.	13	.80	6.2	1.31Au	5	9	9.9	61	43
228	S Southern Co.	23	1.10	4.8	1.55Jy	6	10	14.8	71	32
16	S So. Indiana G. & E.	26	1.60	6.2	2.28Je	17	5	11.4	70	36
7	O So. Nevada Power	17	1.00	5.9	1.60Jy	18	15	10.6	63	34
1	O Southern Utah Power	17	1.00	5.9	1.42Au	13	1	12.0	70	39
3	O Southwestern E. S.	18	1.24	6.9	1.64My	D1	4	11.0	76	27
39	S Southwestern P. S.	30	1.48	4.9	1.76Je	14	4	17.0	84	31
26	A Tampa Elec.	29	1.20	4.1	1.66Se	3	14	17.5	72	39
146	S Texas Utilities	40	1.44	3.6	2.50Au	13	15	16.0	58	38
40	S Toledo Edison	12½	.70	5.6	1.01Je	D3	5	12.4	69	30
14	O Tucson G. E. L. & P.	30	1.40	4.7	2.20Se	18	14	13.6	64	35
122	S Union Elec. of Mo.	25	1.52	6.1	1.92Je	9	11	13.0	79	35
33	O United Illuminating	22	1.30	5.9	1.64Je	3	7	13.4	80	48
5	O Upper Peninsula Pr.	24	1.60	6.7	2.06Je	D5	10	11.7	78	37
41	S Utah Power & Lt.	23	1.20	5.2	1.84Au	8	9	12.5	65	43
118	S Virginia E. & P.	23	1.00	4.3	1.46Se	7	14	15.8	70	39
26	S Wash. Water Power	32	1.88	5.9	2.45Se	10	14	13.1	77	40
132	S West Penn Elec.	25	1.50	6.0	2.10Je	—	9	11.9	72	32
64	O West Penn Power	45	2.40	5.3	3.12Ma	D5	13	14.4	77	33
11	O Western Lt. & Tel.	30	2.00	6.7	2.92Je	—	10	10.3	68	33
26	O Western Mass. Cos.	38	2.20	5.8	3.17Se	3	10	12.0	69	56
105	S Wisc. El. Pr. (Cons.)	30	1.60	5.3	2.37Je	D1	5	12.4	67	40
40	O Wisconsin P. & L.	24	1.36	5.7	1.96Se	9	4	12.2	69	36
37	S Wisconsin P. S.	19	1.20	6.3	1.85Jy	NC	6	10.3	65	36
Averages				5.7%			9%	13.1	72%	
Foreign Companies										
203	S Amer. & Foreign Pr.	12	\$1.00	8.3%	\$1.68Je	20%	2%	7.1	60%	47%
149	A Brazilian Trac.	7	.53N	7.6	2.19De	86	D	3.2	34	73
68	A British Columbia Pr.	40	1.40	3.5	2.34De	14	27	17.1	60	27
17	A Gatineau Power	29	1.40	4.8	2.28De	15	15	12.7	61	32
35	O Mexican L. & P.	12	.50o	4.2	1.67De	D7	62	7.2	84	46
13	A Quebec Power	28	1.40	5.0	1.99De	15	14	14.1	70	52
54	A Shawinigan Wtr. & Pr.	25	.68	2.7	1.42De	22	26	17.6	48	39

A—American Stock Exchange. B—Boston Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. *Based on average number of shares. **Calendar year 1955. a—Estimated annual rate. The "A" stock received stock dividends. b—Also 3 per cent stock dividend December 31, 1956, which is included in the yield. c—Also 2 per cent stock dividend January 10, 1956. f—Also 5 per cent stock dividend August 15, 1956. g—Cash dividends of \$2.50 in 1956 included 30 cents extra; 10 per cent stock dividend also paid April 30, 1956. h—Also stock dividend of one share for each 200 shares held September 12, 1956. i—Also 10 per cent stock dividend November 16, 1956. j—Also 10 per cent stock dividend August 31, 1956. k—Also 5 per cent stock dividend December 17, 1956. m—Also 2½ per cent stock dividend January 10, 1958. n—Also 5 per cent stock dividend December 27, 1957. o—Also 5 per cent stock dividend May 1, 1957.



What Others Think

The Proposed FPC Tax Accounting Rule

RECENT hearings before the Federal Power Commission disclosed an interesting difference of opinion between natural gas companies and electric utilities on the proper accounting treatment of liberalized depreciation permitted under § 167 of the Revenue Code of 1954. Having previously approved the principle of deferred tax accounting, the commission now proposes to amend its accounting rules for electric and gas utilities to provide a method whereby tax deferrals, arising either from liberalized depreciation or accelerated amortization, would be set aside in a reserve account. The method proposed would not be mandatory for any utility electing not to follow deferred tax accounting even though accelerated amortization or liberalized depreciation is used in computing taxes on income. However, once a utility initiates deferred tax accounting, it may not be suspended or discontinued without commission approval and must be carried out as prescribed by the commission.

Generally speaking, spokesmen for electric utilities opposed the proposed changes in accounting rules on two grounds: (1) that an FPC ruling on deferred tax accounting would inevitably conflict with some state regulatory commission rules and with certain requirements of the Securities and Exchange Commission; and

(2) that a requirement that a charge be made to expense for deferred taxes with a credit to a reserve account (instead of a credit to restricted surplus permitted by some state commissions) would deprive utilities of the benefits of tax deferral at the expense of the consumer. Basically, the electric utilities take the position that no cost is involved when depreciation is taken for federal income tax purposes higher than is recorded on the books. They also contend that a charge to expense with a credit to restricted surplus is merely a device to equalize earnings.

WHETHER tax deferrals should be charged to expense and credited to a reserve account, or whether they should be credited to restricted surplus, was by far the most important part of the discussion which occupied an entire day's hearings, September 17th, before the FPC. It was the position of the natural gas companies, in general, and of F. M. Beatty, in particular, that crediting the reserve account should be mandatory and not optional. Beatty, representing the accounting firm of Arthur Andersen & Co., stated the argument this way:

... we feel the right to deduct depreciation under our present tax law is a valuable right and when this right is

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being used up, the cost of doing so should be reflected in the accounts of the company—in order to match the tax benefits resulting from higher depreciation with the costs that create such benefits. The utilization of such rights is what happens when a company elects to take more depreciation for tax purposes than it records on its books.

... Certainly it should not be optional as to whether or not you record a cost, and such optional treatment can only be confusing to the readers of the financial statements and result in an overstatement of earnings in those cases where the cost is not recognized.

Replying to Beatty, A. J. G. Priest, on behalf of Edison Electric Institute, pointed out that electric utilities have no objection to the use of the reserve method if that is the method natural gas companies prefer. He contended, however, that the restricted surplus technique is just as consistent with sound accounting principles and that neither method should be made mandatory in a situation which is being met by the accounting requirements of the several state commissions.

PRIEST pointed out that the weight of opinion in the accounting profession is against the position taken by Beatty. A memorandum submitted to the FPC last April by the accounting firm of Haskins & Sellers on the varied state regulatory accounting treatment of deferred taxes noted that the accounting is not the same in all cases because the circumstances are not the same in all cases. The memorandum suggested that the FPC recognize this situation and permit the various gas and utility companies to follow the accounting prescribed or authorized by their respective state and local commissions, with appropriate disclosure in their financial reports as to such accounting. The

memorandum specifically recommended that the credit arising from income tax deferrals be permitted to be charged to restricted earned surplus where state commissions have so ordered or permitted this practice.

Priest also pointed to a statement submitted to the FPC by the firm of Price, Waterhouse & Company. The statement noted that more than 30 state regulatory commissions have ruled on the accounting for tax deferrals relating to tax and liberalized depreciation. With one exception, all such orders have provided for tax. However, the orders have been about equally divided in balance sheet treatment between the use of restricted and appropriated account on the one hand and a reserve for federal income taxes on the other. Price, Waterhouse urged the commission to broaden the proposed amendments to its accounting rules to permit the credit account to be treated as restricted or segregated surplus whenever state regulatory commissions permit such treatment. The accounting aspect of deferred taxes, said the statement, may be so closely related to the rate-making aspect that the views of the state regulatory commissions should not be superseded by federal accounting regulations. It was observed that the retention of the incentive (provided by legislation permitting deferred tax accounting) should not be jeopardized by rigid accounting regulations which may carry regulatory implications making it more difficult for state commissions to deal equitably with the problem.

PRIEST suggested that the FPC could most appropriately exercise its responsibility to the customers of electric utilities and to the industry by accommodating its accounting requirements to those of state commissions. Particular accounting concepts should not be imposed on these com-

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missions, he said, until after there has been a clear and convincing demonstration that the accounting proposed and carried out by the state commissions does not provide full disclosure, or that it violates accepted principles of accounting or interferes with the exercise by the FPC of its appropriate regulatory functions.

Priest declared that he spoke for a substantially united industry in requesting the FPC not to promulgate any rule in connection with tax deferral accounting.

Commenting on the possibility of the retrospective application of any accounting rule regarding either accelerated amortization or liberalized depreciation, Priest said any such retrospective application would be both unfair and unreasonable. Pointing out that the first rapid amortization certificates were granted six years ago or more, he noted that the credits made to restricted surplus or to a reserve for purposes of normalization have begun to be translated into debits in many instances. Furthermore, he added, those companies under FPC jurisdiction which have used the restricted surplus method from the beginning have earned securities in the amount of approximately \$1.3 billion. Financial representations made by these companies obviously have been relied upon by the purchasers of the securities in question. Priest said those representations should not be required to be modified, either directly or indirectly, at this late date.

PRIEST also objected to a proposed requirement for the accounting of deferred taxes by years of property additions—so-called “vintage” accounting—on the ground that it is neither necessary nor proper. Although the FPC staff contends that such accounting can be done without undue expense, Priest noted that many companies do not maintain their

property records on a “vintage” accounting basis and to require them to do so would impose exceedingly onerous and costly burdens. He said that Public Service Electric & Gas Company of New Jersey has estimated that the adoption of vintage accounting would in the case of that single company involve additional field accounting costs of approximately one million dollars. Since the plant account of the New Jersey company represents about 2.8 per cent of the total plant account of the industry, applying the one million dollar figure to total plant account of the industry results in a total of about \$35 million.

THE arguments advanced by Priest against the proposed accounting regulations were elaborated by Donald C. Cook, on behalf of American Gas & Electric Service Corporation. His first point was that, in light of certain provisions of the Public Utility Holding Company Act and the Federal Power Act, there was some question of the authority of the FPC to promulgate the proposed amendments to the Uniform System of Accounts and to make them applicable to companies in registered public utility holding company systems, such as AG&E. Although the FPC may have paramount authority with respect to accounting matters so far as state commissions are concerned, Cook pointed out that § 318 of the Federal Power Act provides that in cases of conflict between the Securities and Exchange Commission's jurisdiction and that of the FPC, proposed rules or regulations that would otherwise be applicable to the particular company shall not by the terms of the Federal Power Act be so applicable. Section 20(b) of the Holding Company Act, Cook noted, prohibits the SEC from requiring methods of accounting inconsistent with the requirements of state commissions. Six of seven state commissions

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having jurisdiction over AG&E subsidiaries have prescribed the use of restricted earned surplus for the comparable credit arising in connection with the normalization of both accelerated amortization and liberalized depreciation.

The proposed rule also runs afoul of § 15 of the Holding Company Act, Cook said, which requires every registered holding company and every subsidiary to keep such accounts as required by the SEC. In carrying out this mandate, SEC has promulgated two rules—U-26 and U-27. Under Rule U-26 the SEC requires that holding companies, except those which are primarily electric utilities, shall follow the Uniform System of Accounts for public utility holding companies. Under Rule U-27, both public utility holding companies and subsidiaries which are electric public utilities but which are not required by the FPC or a state commission to conform to a classification of accounts are required to keep accounts in accordance with the requirements of the FPC's Uniform System of Accounts.

ALTHOUGH neither SEC rule imposes directly any requirement to keep specific accounts upon those public utilities which, but for the Holding Company Act, would have been subject to the accounting rules of the FPC, the operation of the rules by indirection produces such a result, Cook explained. Taken together, the two SEC rules amount to a precise direction as to the accounting to be followed by public utility companies in holding company systems, he said. This amounts to a delegation by the SEC to the FPC of the SEC's power to promulgate accounting rules, in so far as electric utilities and holding company systems owning facilities subject to the Federal Power Act are concerned. Said Cook:

The only tenable conclusion is that

the Federal Power Commission has been given a portion of authority to regulate the power of companies in holding company systems which Congress placed in the SEC. But § 20(b) of the Holding Company Act, as we have seen, imposes a requirement that accounting regulations by the SEC shall not be inconsistent with the requirements of state commissions having jurisdiction. And this requirement cannot be nullified by a series of rules which, taken together, result in doing indirectly that which was prohibited from being done directly. The SEC, therefore . . . can give to the FPC . . . only such accounting authority as it has; that is, accounting authority circumscribed by the limitation of § 20 (b). And the FPC cannot impose, we submit, on utility companies in holding company systems, accounting requirements outlawed by § 20(b). Therefore, in so far as the proposed changes in the Uniform System of Accounts would require that the contra credit must be placed in a reserve account, the prohibition against requirements inconsistent with those of state commissions imposed by § 20(b) is violated and proposed rules are therefore invalid in their application to electric utility companies in registered public utility holding company systems.

THE whole problem could be avoided, said Cook, if the FPC merely eliminates the mandatory feature of its proposed rules and either makes no rules regarding the contra credit or makes one consistent with state commission orders. This approach would not represent a new departure from the FPC's practice in the past, he pointed out, since the FPC has heretofore accorded similar treatment to income and expense in connection with

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merchandising, jobbing, and contract work where those companies subject to the Uniform System of Accounts have been directed to follow the requirement of an applicable state rule.

Both the reserve method and the earned surplus method of accounting for the normalized income are consistent with accepted principles of accounting and the earned surplus method is preferable, Cook argued. He said:

The accumulated body of generally accepted accounting principles is rooted in the concept of matching costs and revenues in fiscal periods. But in the case of public utilities, a sterile adherence by the accountants to old concepts in dealing with new phenomena—such as accelerated amortization and liberalized depreciation—would not only have frustrated the congressional purposes, as clearly disclosed by the legislative history of the applicable statutes, but also would have produced inequities as between present and future customers.

As has been the case in other aspects of regulatory accounting — *e.g.*, the adoption of original cost to take the place of actual cost—an accounting procedure had to be devised and approved both to effectuate the congressional purpose and to deal fairly with both present and future customers, Cook explained. That procedure, clearly an exception to the cost concept and to the general rule against equalizing, was found in “normalizing” the income account. The use of the normalizing technique, Cook noted, has been approved by the American Institute of Certified Public Accountants. He continued:

The normalizing process, necessary to deal fairly with present and future customers, consists merely of making

a charge to income with which no actual cost in the current fiscal period is associated, and carrying the offsetting credit directly to a balance sheet account. The amount of the charge is measured by the difference between actual income taxes and the amount such taxes would have been if the larger deduction for amortization and liberalized depreciation had not been taken. It is called a provision for deferred taxes because in the future income taxes will undoubtedly be larger than otherwise as a result of the then reduced available deductions. But the way it is accomplished and what it is called cannot obscure what it actually is—a charge to expense with which no current cost—and I emphasize *current*—is associated. And since no cost is involved, it is in fact income in the period received. Accepted principles of accounting require that income be credited to earned surplus—and proper regulatory principles require that it be restricted against the payment of dividends; and that is what our companies have done.

ALTHOUGH it is true that there is a future disadvantage in the form of later higher taxes associated with receiving the income in the present, that cannot change the fact that income has been received, Cook stated.

Full information with respect to the matter should and is disclosed, he said, but noted that so are the facts with respect to labor contracts calling for increased wages in future fiscal periods, or leases calling for increased rentals in future fiscal periods, or long-term purchase contracts for natural gas at increasing prices. “No one contends that as a matter of accounting principle such items, all representing much stronger cases, either give rise to current costs or existing liabilities.”

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THE interests of consumers and the general public interest would be assisted if the earned surplus method of accounting is permitted, according to Philip Sporn, president of American Gas & Electric Service Corporation. Sporn told the commission that the changes contemplated in the new accounting rules would have an effect of great importance on the cost of rendering electric service and on the price the consumer will have to pay for that service.

Illustrating his points with charts, Sporn explained that despite the tremendous rise in costs of production, AG&E has been able to bring its over-all costs down, partly because of its financial structure and financing. "During the past several years," he said, "we have had enormous help in accrued restricted surplus which has been fully useful as a basis of maintaining our equity ratios. It has therefore served the same purpose as newly raised capital." If any of this capital should have to be replaced by a bloc of stock equity, he pointed out, that bloc would not only have to have the earnings at a rate sufficient to satisfy the requirements of the market place, but roughly an additional amount to furnish the tax component.

The only place that this particular expense can come from, assuming only an adequate rate of return, is the consumer. If the rate of return is already overadequate, he said, the consumer will lose the benefit of this expense in any possible rate reductions. In one chart, Sporn showed the differential in cost between debt and equity financing and its effect on power costs, based on the assumption that equities can come in at 15 times earnings—a very favorable financial situation. That amounts to 6.67 per cent. The federal income tax component is 7.23 per cent. The difference between the total of 13.97 per

cent and debt cost is 8.9 per cent. At the present time, Sporn said, AG&E has \$45 million in restricted surplus. If it were transferred to reserve account, if it were replaced by new equity, he said it would involve additional financing costs of \$4 million a year.

SPORN said it would be contrary to the aims and purposes of the Federal Power Act, and contrary to the commission's concern for the interests of the consumer to place such a heavy burden, one likely to become heavier in the near future, on the consumer by amending its accounting rules as proposed. He pointed out that the tax deferral items are of no value to the company, as far as capital structure is concerned, if they are not placed in the surplus account. Sporn's company has been ordered by the state commissions in six of seven states to place the items on restricted surplus. It is Sporn's view that the Federal Power Commission should leave with the state commissions the responsibility to decide the issue. In reply to a question from Commissioner Connole, Sporn admitted that the tax items in restricted surplus would form part of the equity of the company. He insisted, however, that though the money is available as equity, the question of how it is to be treated by state commissions in a rate case is a matter left up entirely to the commission. "The point is," he explained, "if they are not in surplus account, the utility has an additional expense. It is simply impossible to make available to a consumer a saving that has taken the form of an expense."

Asked what difference it would make either to regulatory commissions or a utility whether the tax benefit money put into plant showed up in restricted surplus or a reserve account, Sporn acknowledged that in either case the money would be

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available for plant building purposes. In one case, however, the money serves as equity and supports additional debt and in the other case additional equity must be raised from investors. Equity, he pointed out, is much more expensive financing. And that expense is borne by the consumer.

THE consumer would still have this additional expense, Sporn continued, even if the state commission should not allow earnings on property purchased with dollars arising from tax deferrals. This is so because the company, in raising capital, would have to go out and raise

equity and the consumer must bear this expense. In other words, Sporn argued that the accounting for tax deferrals has nothing to do with the way they are treated for rate-making purposes. If the FPC leaves the matter to state regulatory commissions, there is no possibility that any utility will derive any undue advantage.

However, if the FPC enforces the reserve method of accounting, utilities will be put to a greater expense which must come from the consumer in one of two forms: higher rates or rate reductions which do not materialize because the utility's expenses have been raised.

Regulation by Crisis—The Pittsburgh Railways Case

Background of the Strike

ON October 14, 1957, operations of the Pittsburgh Railways Company closed down as a result of a strike by its employees. At the time of writing, it seems that the strike may be a long one. A strike in the transit system lasted thirty-four days in 1954. Estimates are that the transit company daily revenue losses are \$64,000; employees, even if they obtain the highest pay rate demanded, will find this gain nullified if the strike continues beyond a month.

These are important considerations, but even more important are the problems that this labor-management relations failure raises for the public and commercial and industrial concerns in the Pittsburgh area. Many firms are losing business they will never make up. The public, to meet the emergency, is establishing car pool habits which will continue, and therefore lower transit passenger volume, even after the strike is over.

If all concerned—management, labor, and the public—lose because of the strike,

why does it happen? The events immediately preceding the strike are these:

At the beginning of July, the company and union (Division 85, Street, Electric Railway, and Motor Coach Employees) began negotiations on renewal of their contract which was due to expire on September 1st. Negotiations were begun sixty days early to comply with the Taft-Hartley Act.

On August 14th, the company made its first offer—a wage increase of five cents per hour on September 1st, and another five cents next year, *contingent* on the granting of fare increases by the public utility commission. The final offer made by the company would have given the employees a 16-cent increase in a two-year period. The union began with a demand for a 36-cent increase, but lowered it to 31 cents over a two-year contract period. Thus, there was a difference of 15 cents between the best offer of the company and the minimum acceptable to the union.

ON August 29th, with just a couple days left before contract expiration

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and with prospects for renewal very dim, government labor mediators were able to get the union to agree to a temporary postponement until October 14th. The delay permitted public utility commission hearings on fare increases sought by the company. The commission, on October 7th, granted fare increases which presumably would produce \$1,078,000 annually in extra revenue.

On October 14th, despite round-the-clock negotiations, the transit lines were struck with not only a failure to reach accord on wage rates, but also amidst bitter charges and countercharges by management and union officials as to each other's good faith in bargaining.

The Public Utility Commission's Role

WHAT is of special significance here is the unusual rôle forced on the public utility commission. In effect, the commission was placed in the unenviable position of having to grant rate relief, without having control over the impending wage increase which would necessitate the rate increase. The labor relations crisis and its possible adverse effects on the public were patently clear to the commission even before the request for rate relief was brought to it. Mayor Lawrence, with an eye more to his November re-election campaign than to the economic realities of the crisis, promised the public that the city of Pittsburgh would oppose an increase in rates for the Pittsburgh Railways Company. He went on to blame the company for its own financial difficulties, insisting that if the changeover from trolley cars to buses had been made as suggested several years ago there would be no financial crisis. But, right or wrong in his accusation, the mayor's resistance faded in recognition of the fact that a wage increase for the transit company employee was inevitable.

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With no organized public opposition, the commission was faced with a situation in which failure to offer rate relief would certainly lead to a strike and would then give the public the impression that the commission was in fact the villain of the piece. On September 11th, the company filed applications for rate relief with the commission. Increases of $1\frac{1}{4}$ cents for bus and trolley tickets and three cents for cash fares were requested. These fare increases were expected to produce \$1,078,000 annually in extra revenue, presumably enough to take care of wage increase demands. Recognizing that the labor-management truce would last only until October 14th, the commission expedited its hearings on the matter and on October 7th granted the rate relief as requested. The fare increases went into effect on October 13th and the public felt the crisis had been successfully passed.

IT became apparent quickly, however, that despite the commission's prompt response to the extreme pressures put on it, the public interest was to be violated. The union would not accept the company's offer, contending that the latter had misrepresented its position in arguing its case before the commission. The union alleged that the commission had been duped by the company in granting the fare increases it did. The union presented statistics indicating that the additional revenue resulting from the fare increase would be more than the company-estimated \$1,078,000; that this extra revenue, which was to be used only to meet wage increase demands, significantly exceeded the wage increase the company was willing to offer; and that the employees' position would deteriorate because some unemployment was bound to come from the fare increase (and subsequent passenger volume decline). The company of course

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provided data to repudiate these claims. But more importantly, the commission was caught in between.

Who is to be blamed for the impasse which occurred even after rate relief was offered? There seems to be no point in assigning culpability to either the company or union. Instead, it seems fairer to recognize that this particular failure is one of many similar ones, all reflecting the inadequacy of public policy in dealing squarely with transit labor problems. It was suggested some years ago, in this periodical, that the existing practice of having fares regulated by public utility commissions and of having wages in the public utilities determined by management and labor, quite independently of the utility commissions, was not a policy calculated to protect the public interest.¹ How can commissions be expected to discharge their responsibility to the public when they have no control over wage negotiations which may have substantial effects on operating costs and thence on rate relief requests? Also, how can the public be assured of continuous utility service when no official agency has the power to intervene in public utility labor disputes? These problems have beset the regulatory authorities since inflation became a serious, continuing threat to the utilities after World War II.

WHILE labor relations difficulties have been considerable for all privately owned utilities, the transit industry seems to have fared the poorest. The others, though also subject to continuous pressure for higher wages, have had several factors working to their advantage. First, labor

costs as a percentage of total operating expenses have not been so high as to cause severe increases in the latter. Thus, for example, if labor costs are 30 per cent of total costs for an electric utility, a 10 per cent wage increase will cause only a 3 per cent increase in operating expenses. For the transit industry, however, labor costs often account for as much as 70 per cent of total costs. Here, then, the same 10 per cent increase in wages would cause a 7 per cent increase in operating expenses.

SECOND, most utilities other than the transit industry have been able to offset wage increases with increased productivity. In some cases (the electric utilities for example) output per man-hour has gone up faster than have wages and rate decreases have actually been possible. Output per man-hour for the transit worker, on the other hand, has generally gone down this past decade, not because he is a shirker but because of factors beyond his or his employer's control. His productivity has declined because he carries fewer passengers at a slower rate through town than ever before. Much of the blame for the decline can be laid to municipal officials and shortsighted public policy, which in subsidizing automobile travel and failing to provide the rights of way necessary to increase transit speed to improve its competitive position, has contributed to the mass transportation dilemma.

Third, the monopoly position of the other utilities has remained relatively firm. The transit industry has not been so fortunate since its peak of World War II. The statistics for the whole transit industry, as presented by the American Transit Association, demonstrate this decline quite graphically. Between 1945 and 1956, revenue passengers decreased from 18,981,900,000 to 8,756,000,000. More

¹ Roscoe Ames, "Should State Commissions Regulate Utility Labor Relations?" *PUBLIC UTILITIES FORTNIGHTLY*, March 13, 1947, pp. 352-356, Vol. XXXIX, No. 6. A more complete discussion of this proposal may be found in the author's "Wage Determination in Local Public Utilities," *Southern Economic Journal*, October, 1957, pp. 190-199.

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specifically, the decline in operations of the Pittsburgh system is evidenced by the fact that in just four years, 1953 to 1957, the number of operating employees fell from 2,008 to 1,379.

None of the above is meant to infer that the utilities other than the transit one have prospered because of the inflation. But none has suffered as badly as the latter and none, therefore, needs as much special consideration as the latter.

Conclusions

RECENT events involving the Pittsburgh Railways Company and its employees, the public utility commission of Pennsylvania, and the public (by no means least) have demonstrated the financial difficulties of the privately owned transit industry quite dramatically. The traditional rôle of the regulating commission, that of protecting the public interest and therefore contributing to policies which keep the utilities financially healthy, is being challenged. In an almost unprecedented action, the commission granted rate relief in advance, to permit a wage increase which would presumably guarantee stable labor relations.

The commission's efforts to protect the public interests proved unsuccessful, for which they cannot be blamed. Nor can

the transit management or labor be entirely blamed. The public interest is not furthered by paying workers less than the wages earned in comparable industries or when utility investors earn less than a fair return on their investment. The fault lies in the inaction of public officials and in their unwillingness to relate the financial difficulties of local transit companies to the complex urban mass transportation problem. The cities must eliminate inequitable and financially burdensome requirements found in many transit franchises. The cities must either eliminate the tacit subsidies made available to automobile travel or at least make comparable subsidies available to public transit companies.

The cities must in their extensive redevelopment programs provide rights of way to improve transit productivity and thereby enable public transportation to attract more passengers. Finally, the several important decision-making and regulating activities relating to public transit must be co-ordinated by public officials. Otherwise, as is the case in Pittsburgh, the public utilities commission cannot discharge its responsibility properly.

—EDWARD SUSSNA,
*Assistant professor of industry,
University of Pittsburgh.*

“WE must remember that the men of intelligence, talent, and worth are the men who think things out for themselves and who frequently don't go along with prevailing opinion. They are the men of ideas, the men who have the vision and imagination to see beyond today, the men who have the courage to express a startling new idea.

“I recognize the importance of teamwork in the successful operation of our complex corporations. But just as a winning ball team must have a good captain, so business must have leadership with imagination that will spark and excite interest of the individuals on the team. WE MUST STRIVE TO DEVELOP THE CAPTAIN AS WELL AS THE TEAM.”

—MELVIN H. BAKER,
Chairman of the board, National Gypsum Company.

The March of Events



Opposes Natural Gas Bill

A TOP coal industry leader told oil men recently that his industry opposes the natural gas bill because it would "compound the problems of coal producers" and "deprive our competitors of none of their present advantages."

Tom Pickett, executive vice president of the National Coal Association, said the present law provides for regulation of sales in interstate commerce by the pipeline companies for resale, but no pro-

vision is made for regulation of direct sales to industrial customers.

The present marketing practices of the gas industry "encourage the diversion of gas to industrial consumption and contribute substantially to higher gas prices for the home consumer," Pickett said.

Pickett's remarks were made in a "factual presentation" of the coal industry's views on the natural gas bill at a convention of the Independent Petroleum Association of America, held last month in Dallas, Texas.

California

Electric Rate Hike Approved

THE state public utility commission recently granted Pacific Gas and Electric Company permission to increase its electric rates by 5.16 per cent, effective November 15th, to produce an estimated \$16,967,000 in additional gross annual company revenue.

The utility sought the increase because of higher costs of fuel oil. Two-thirds of

the company's power is generated in steam plants. The commission estimated the increase would permit the company to earn 5.75 per cent on its investment.

The commission denied a request by farm users of electricity that their increase be smaller than that of other customers. A company request for automatic rate adjustments tied to fuel oil prices was also rejected by the commission.

Kentucky

New Policy on Gas Rates Adopted

A NEW policy of tying together the rising wholesale price of natural gas

and rates paid by retail consumers in Kentucky was adopted last month by the state public service commission.

Chairman James F. Gordon said Ken-

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tucky was the twentieth state to adopt this method of adjusting gas rates. The new plan will permit distributing companies to adjust rates up or down, depending on increases or reductions in wholesale prices, without the expense and delay of formal rate cases before the commission.

However, the commission will retain

control and final authority over such increases or reductions through a new system of company reports and commission analysis of them.

The commission's new policy was laid down in a decision granting Western Kentucky Gas Company of Owensboro an 8 per cent increase in rates, amounting to \$643,563 a year.

Nebraska

Terminal Point Selected

AN area within three miles of Lincoln has been selected as the terminal point for Consumers Public Power District's plan to build a 230,000-volt electrical line from Fort Randall dam in South Dakota.

This was revealed in a statement by Consumers' general manager, Ray L. Schacht, which came after an application was made to the state railway commission to build the line.

Earlier it was announced that the line might be built by Consumers to terminate near Seward, as is included in the plan proposed by the Generation and Transmission Co-operative which also has applied to the state commission for approval of the line.

Schacht said Consumers' application called for a 191-mile line designed to carry 100,000 kilowatts of power. It

would be privately financed and would cost nearly \$5 million.

Farms and Power Firms Discussed

FARMERS and distributors of electric power are interdependent—if one fails, both fail, a Deputy Administrator of the Rural Electrification Administration stated recently. He was Fred Strong of Washington, D. C., who spoke in Lincoln at the annual meeting of the Nebraska Inter-Industry Electric Council.

The future of any power district, co-operative, or company, he said, is no more certain than its ability and willingness to deliver maximum service at the lowest price economically feasible.

Strong foresees a need for \$1 billion annually in the next twelve years to finance increased facilities to meet the need for electrical power.

Oregon

PUD Boosts Rate

THE Tillamook County Public Utility District has raised its rates for electricity one mill for farm and residential users who consume more than 700 kilowatts of power each month, the PUD said recently.

The rate increase was caused by increased costs of power, labor, and mate-

rials, a PUD spokesman said. He explained that increased usage among farm and residential buyers had made it imperative that additional funds be invested in transformers and other items.

The PUD board of directors passed a resolution October 28th authorizing the rate increase, effective November 1st. It will raise the power rate from 7½ mills per kilowatt to 8½ mills for farms and homes.



Progress of Regulation

Trends and Topics

Rate Concessions to the United States

THE Supreme Court, many years ago, ruled that private consumers of a gas company had no right to require equality with the government of the United States in the matter of rates. That principle was stated in a case involving rates fixed by the District of Columbia commission. The government could make it a condition of allowing the establishment of gasworks that its needs should be satisfied at any price it might fix. Other customers were under no legal obligation to take gas, nor was the government bound to allow it to be furnished. If they choose to take it, they must submit to an enhancement of price (PUR1921C 637).

That decision, however, left many questions unanswered. Aside from the question of constitutional rights or the question whether it is fair to shift cost burdens from the federal government—and taxpayers—to other customers, there are questions as to state jurisdiction, deviation from filed tariffs, governmental immunity, congressional policy, and interpretation of regulatory laws. A Pennsylvania court has recently expressed opinions on these questions in *United States v. Pennsylvania Pub. Utility Commission*, No. 121, September 30, 1957.

State Regulation Upheld

Before reviewing the Pennsylvania decision, notice may be taken of a federal court ruling on state regulatory authority. A motor carrier obtained a judgment against the federal government for the difference between freight charges paid and charges due under tariffs filed with the Kentucky commission (6 PUR3d 499). The court upheld the authority of the state to regulate rates even though transportation was between Fort Dix and other government enclaves. This, said the court, was not interstate commerce and the state had exclusive jurisdiction.

The Interstate Commerce Act provision for rate discrimination on government shipments did not apply.

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Decision of Pennsylvania Court

The Pennsylvania statute provides that no public utility shall charge "any person, corporation, or municipal corporation" less than the rate specified in filed tariffs. It had been argued that this did not apply to shipments by the United States because it did not specifically mention the United States. The court concluded that the legislature did not intend to exclude such shipments by mention of only the three categories. Before a utility may charge rates other than those in officially filed tariffs it must file changes with the commission. The Pennsylvania Railroad Company was transporting property for the United States government at less than filed rates.

The court then went on to hold that undue or unreasonable discrimination resulted from such reduced rates. Any inequality of charges or facilities must be justified by a difference of circumstances and situations relating to the shipment and not to the shipper. The fact that the federal government is the customer is not such a material difference as to justify a difference in charges.

The federal government also raised the question whether the law, if prohibiting rate concessions to the federal government, was constitutional. The court decided that any immunity extended to the United States government does not extend to those who render services to the government, such as a railroad company. Moreover, the mere fact that there might be an increased economic burden imposed upon the government by requiring a railroad to comply with its established tariffs was held not to be a valid basis for bringing the railroad within any implied governmental immunity from regulation by a state.

The court also rejected a contention that state regulation of rates conflicts with a specific congressional policy that all government shipments be made by special arrangement free from regulation. This purported congressional policy, said the court, was apparently based upon the general government requirement of competitive bidding and upon § 22 of the Interstate Commerce Act, which permits interstate governmental shipments free or at reduced rates. The court said that the policy in favor of competitive bidding is not so strong as to prevent local regulation of rates.

California Decision Distinguished

The United States relied to some extent upon a federal court decision (14 PUR3d 300) which held a California law unconstitutional in so far as it purported to authorize the state commission to impose "such conditions as it may consider just and reasonable" upon the granting of reduced rates by commercial carriers in favor of the United States. The Pennsylvania court said that the California law is different from the Pennsylvania law, which does not permit such reduced rates. The Pennsylvania commission order did not purport to impose any further regulation or condition upon the shipment of federal property. The judge delivering the federal court opinion gave great weight to the fact that by reason of conditions imposed by the California commission, there might be delays in shipments and interference with activities connected with the national defense, which would impede the discharge by the United

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States of its constitutional powers and responsibilities. The specific question whether a state could completely deny rate concessions to the federal government was not at issue.

Contrary View of Louisiana Court

The Louisiana commission, in a decision overturned by the courts, ruled that the federal government was not entitled to different treatment by intrastate common carriers than was accorded any other shipper. Kansas City Southern Railway Company had assessed a lower transportation rate on gasoline moving intrastate to Barksdale field than the tariff rate. The company set up the defense that § 22 of the Interstate Commerce Act permits the quotation of lower rates to the federal government. The commission said there was no provision of state law parallel to § 22 of the Interstate Commerce Act (98 PUR NS 352).

The Louisiana supreme court affirmed a lower court order upholding the reduced rates and enjoining enforcement of the commission order. A general order of the commission prohibiting unjust discrimination, according to the court decision, was intended to prevent a common carrier from rendering to a user of its transportation facilities (a shipper or a passenger) any unreasonable preference or advantage over other users. The court said it had been recognized universally that there are numerous classes of patrons that may be preferred without the preference constituting unjust discrimination against other users. In fact, the commission had exempted property handled for state, parish, city, or town government. The court concluded that, although the reduced rate allowed the United States was in a sense discriminatory, there was no showing whatever that it was unreasonable, unjustified, or prejudicial to the rights of any other users of the company's transportation facilities.

The court quoted with apparent approval a statement by the government that the rate pertained to the movement of aviation gasoline, a commodity "essential to the defense program" being carried on at Barksdale field for the benefit of all the people of the United States, including citizens of Louisiana. The element of competition between the federal government and commercial shippers was said to be nonexistent (5 PUR3d 339).

Telegraph Rate Differentials under Federal and State Laws

The Federal Communications Commission, in authorizing certain increased telegraph rates, refused to eliminate a differential applicable to the federal government. Reference was made to the Post Roads Act granting to telegraph companies the right to construct, maintain, and operate lines over the public domain, navigable waters, military and post roads of the United States. This placed the company in a somewhat different position from other companies supplying service to the government. Congress, said the commission, had indicated a desire to preserve special reduced rates in some form for government telegraph messages and it was incumbent upon the commission to give proper regard to that intent. The commission expressed the view, however, that Congress should give consideration again to the question whether these special

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rates should be eliminated. The commission was particularly mindful of the fact that the government was accorded no specially reduced telephone rates (64 PUR NS 216).

When the telegraph company sought approval of the increased rates by the North Carolina commission, however, the government preference was removed. The laws of North Carolina provide that there shall be no discrimination in the application of charges by utilities under the jurisdiction of the commission. The commission is vested with broad powers in the establishment of rates, and while it might be maintained that the U. S. government differential did not constitute undue discrimination, the commission found no compelling reason for the lower rate. The commission added that if it were to grant this concession in telegraph rates, this would open the door for government differentials on telephone, electric, and gas service, a concession that the commission was not willing to grant. The commission added that it is a well-recognized fact that when any customer of a utility is given a concession in charges, other customers have to pay for it (64 PUR NS 254).

No Rate Concessions for Gas and Electricity

The Missouri commission dismissed an application by various commanding officers of Army posts for a reduction in gas, electric, and water rates for service furnished to the posts. The commission said it was not consonant with the principles of regulation to say to a utility that it must charge one of a number of customers of a class one rate and at the same time make a higher charge to all other patrons of the same class. Neither was it within the power of the commission. The matter of charging a lower rate was said to be a matter within the managerial powers of the utility, it being understood that the utility should not furnish that service to those departments of the government at rates that would create a burden upon other users of the service (2 PUR NS 372).

The federal government, in behalf of its Departments of Army, Navy, and Air Force, contended in a gas rate proceeding before the California commission that special treatment should be accorded 24 military establishments primarily because the government owned, operated, and maintained the distribution system within such establishments and consequently did not receive the same full service supplied to other customers. The commission, after considering the government's arguments, concluded that all the services should properly be billed at the rates prescribed in filed schedules. A rate had been established in the general service schedules to give appropriate recognition to the type of service accorded government users (82 PUR NS 473).

The Alabama commission dismissed a complaint by the United States against rates for gas service to Army airfields. The record did not justify a special rate lower than that available for similar service rendered to other customers (75 PUR NS 185). The New Jersey board approved proposed gas rates notwithstanding a contention by the United States that gas sold to a fort should be priced at a lower level. The proposed rate level was not considered to be unreasonable when related to the customer's characteristics of use and the cost

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of providing service (75 PUR NS 183). The Massachusetts commission found no justification for the United States Army obtaining under contract electricity at lower rates than were charged to the state or various cities or towns (PUR1933D 433).

Review of Current Cases

Commission Has Power to Order Local Utility Taxes Surcharged to Local Subscribers

THE commission's power to fix rates includes authority to permit a utility to pass on license and occupation taxes to local customer beneficiaries of such taxes, the Missouri supreme court ruled. Under its rate-making power, the commission necessarily has authority to determine what items are properly includable in operating expenses and to determine what treatment should be accorded such items.

In granting a rate increase to Western Light & Telephone Company, Inc., the commission had authorized the company to surcharge local consumers for the amount of local license and occupation taxes (10 PUR3d 70). The tax question was the only matter appealed.

On the allowed return of 6.20 per cent, the amount of necessary additional gross revenues came to approximately \$100,000. About \$15,000 of this sum would be obtained by eliminating future local license and occupation taxes from system-wide operating expenses and surcharging local subscribers. The evidence showed that of the 36 exchanges operated by Western, 11 were in cities or towns which levied no such taxes. Of the other 25, 10 assessed a fixed annual sum varying in amount from \$10 to \$75, while the remaining 15 levied a tax of from 2 to 5 per cent of Western's gross receipts.

The court observed that the case before the commission was a valuation and rate case. Appellants tacitly conceded that if

the \$15,000 of the necessary \$100,000 were not obtained by passing on the local taxes, Western would be entitled to an increase in rates to provide the \$15,000.

Reasonableness of the Order

Having found that the commission had power to authorize the company to pass on local taxes to local subscribers, the court turned to the question of whether the order was in fact reasonable in this respect. The commission had found that Western's practice of treating license and occupation taxes as a system-wide operating expense was unjustly discriminatory as to those subscribers who did not reside in a municipality which levied such a tax or who resided in a municipality which levied a smaller tax than others where Western had exchanges. While the court intimated that this finding was not necessary to the validity of the order, it nevertheless found adequate evidence to support the finding. The disparity in taxes levied has been noted. Justifiable inferences could be drawn that the only beneficiaries of such taxes were the residents of the taxing municipalities and, conversely, that nonresidents received no benefit from them at all.

The court ruled that the commission's action was reasonable even though there was no direct evidence before the commission that the order eliminating dis-

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crimination as to nonresidents of the taxing municipalities would not result in new unjust discrimination against the municipal residents, who would be required to absorb the taxes. It was sufficient that there was nothing to show that no new unjust discrimination would result. If any further discrimination should in fact develop, it would fall under the commission's scrutiny in due time. The theory of rate making on a system-wide basis assumes that inequities of a sort will exist but that a rough balance of such inequities will usually result, said the court. Any discrimination thus remaining is not unjust discrimination.

The court observed that a utility need not operate exclusively either under a system-wide rate structure or a local unit rate structure. Nor must an expense item under a system-wide rate structure necessarily be spread over the entire system regardless of the nature of the item. In

fixing reasonable rates, it is the province and duty of the commission to treat costs, including taxes, in the way in which, in the commission's judgment, the most just and sound result will be obtained, the court stated.

No Interference with Tax Power

It was argued that the commission illegally interfered with the municipalities' taxing power by converting the taxes against the company into taxes against the local telephone subscribers. The court found no merit in the contention. The utility remained the party taxed. The only effect of the commission's order in that respect was to permit the utility to collect the money with which to pay the tax from the tax beneficiaries rather than from all subscribers. *Missouri ex rel. City of West Plains et al. v. Missouri Pub. Service Commission et al. No. 45,807, September 9, 1957.*



Local Taxes Passed on to Local Consumers

THE West Virginia commission asserted its authority to authorize a utility to charge local license and occupation taxes to local customers. The commission approved a tariff modification which will permit the Chesapeake & Potomac Telephone Company of West Virginia to pass on such taxes pro rata to local customers rather than include them in system-wide operating expenses.

At the time of this proceeding, only two taxes were affected by the tariff provision. The city of Huntington charged a tax of \$46,590 based upon gross receipts, while the city of Martinsburg levied an exaction in the amount of \$1,150. The company will not benefit financially from the tariff provision. It is concerned only with the problem of who shall fur-

nish the revenue with which to pay the taxes. The commission noted, however, that the company may enjoy an indirect benefit in that it might be able to sell its service at a lower charge under the provision.

The company contended that it was inequitable for a city to impose a tax that is chargeable to system-wide expenses to be paid by all the company's customers in the state. It was pointed out that when a municipality is able to levy a tax with the knowledge that only a small percentage of it will be paid by subscribers residing in the locality, the taxing authority will be encouraged to impose taxes since it will not have to answer to its own citizens. Under normal conditions, their opinion is a restraint on the tax power.

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On the other side, it was argued that the proceeding was based upon future taxes and that any such charges presently paid by the company were already a part of its operating costs. Protestants also questioned the commission's jurisdiction and raised the issue of interference with the tax power.

Discrimination Eliminated

The commission indicated that its prime consideration was the fact that it is just to require those subscribers who benefit from local taxes to furnish the revenue for their payment. The new tariff provi-

sion would remove an element of discrimination that had existed between various subscribers of the company, the commission observed.

The tariff provision in no way affected the authority of municipalities to impose taxes. While the commission can neither grant nor limit authority to tax, it does have authority, in fixing rates, to take into consideration costs peculiar to certain subscribers and to provide for their collection from such subscribers. Particularly is this true, said the commission, when discrimination will thereby be eliminated. *Re Chesapeake & Potomac Teleph. Co. Case No. 4573, October 7, 1957.*



FPC Not Empowered to Make Assessment against United States for Headwater Benefits

THE United States court of appeals affirmed a Federal Power Commission order which refused, for lack of authority, to assess charges against a federal power project for benefits received from headwater projects owned by a state agency. It was argued that the United States was liable under the 1935 amendment to § 10(f) of the Federal Power Act. The court observed that the congressional purpose of the amendment was to impose upon owners of projects not under license the same obligation to pay compensation for headwater benefits as was then

and theretofore borne by licensees. But while the statute provides that the United States shall be entitled under certain circumstances to receive compensation for headwater benefits, it does not specifically refer to the federal government as one liable to pay for such benefits. In instances in which a statute couched in general language operates to divest pre-existing rights or privileges, said the court, the United States as a sovereign is not bound when no specific reference is made to it. *Grand River Dam Authority v. Federal Power Commission, 246 F2d 453.*



FPC Authorizes Coosa River Power Project

THE Federal Power Commission granted the Alabama Power Company a license to construct and operate four power developments on the Coosa river and to enlarge its existing Lay development. Landowners intervened and protested.

In licensing cases, it was noted, the commission must determine what is the best plan of development for the stream involved, in accordance with § 10(a) of the Federal Power Act. This section requires that licenses be issued only for those projects which, in the commission's

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judgment, are best adapted to the comprehensive development of streams. Besides power production, the commission must consider flood control, navigation, and other public purposes to be served. In this case involving the Coosa river, it was necessary to determine, moreover, whether the plan of development met the requirements of Public Law 436, particularly with respect to navigation and flood control.

Public Law 436 suspended the authority of the Army Engineers to develop the Coosa river and placed its development under the licensing authority of the commission. Under § 13 of this law the commission is still free to recommend federal development of the Coosa river and to reject private development projects. However, the commission expressed the view that the United States itself should not undertake the development of the Coosa river's water resources for public purposes because full economic development could be accomplished under the license granted to Alabama Power Company.

The estimated annual cost of the proposed project was \$15,740,000, while the estimated annual cost of steam-electric capacity required to perform the same service was \$16,258,000. Additional savings would accrue from the use of hydro energy, and the proposed project would provide flood-control storage and other benefits as well. An adequate market for the applicant's type of power output was assured.

Intangible Factors Recognized

Opposition to the project, in many instances, was based on such intangibles as sentimental attachment of individuals to their land. The commission indicated that Congress intended it to take such intangibles into consideration in determining whether a particular project meets the

licensing criteria established by the Federal Power Act.

The commission found that the company's Weiss development, which was particularly protested, would result in the taking of less private land than any other feasible alternative development. Since the project would provide public benefits substantially in excess of its cost, the commission concluded that the private rights in the lands involved must be relinquished in the public interest. Just compensation would, of course, be paid for the lands.

Other Projects Not Included

The company sought to have included in the new license two projects which are presently under separate 50-year commission licenses, expiring in 1971 and 1975, respectively. If this request were granted, the existing licenses would be surrendered and the two developments would be placed under the new license for a period terminating in the year 2007.

The commission could find no adequate justification for bringing the two developments under the new license, although distinct advantages might accrue to Alabama Power Company from their inclusion. The comprehensive development of the Coosa river can be accomplished under the new license with the other two projects remaining under their existing licenses.

Fair Value of Lay Dam Rejected

The company contended that the "fair value" provisions of § 23(a) of the Federal Power Act were applicable to its existing Lay development which was constructed under federal authority prior to the enactment of the Federal Power Act. Section 23(a) authorizes the commission to issue a license for a project which is being operated under federal authority granted prior to 1920 and directs that the fair value of such a project be allowed as

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net investment, for the purposes of the license.

The applicant apparently took the position that it was voluntarily relinquishing its prior authorization in order to secure a license under the Federal Power Act to authorize the continued operation of the Lay dam. If this proposition were sound, said the commission, the company would be entitled to have its investment in the project determined on the basis of fair value. But the commission indicated that

it was not licensing the Lay development in consideration of the surrender by the company of its existing permit. Rather, it was authorizing the construction and operation of an enlarged and reconstructed Lay development for which the company had no existing authorization. Alabama Power Company was therefore not entitled to a "fair value" license for the Lay development under § 23(a). *Re Alabama Power Co. Opinion No. 305, Project No. 2146, September 4, 1957.*



Holding Company Permitted to Acquire Water Company to Effect Economies

THE Connecticut commission authorized a holding company to acquire at least 51 per cent of the common stock of a water company after finding the transaction to be in the public interest. It concluded that economies might result to the patrons of the water company through joint purchasing which should result in better prices on materials, and through the pooling of materials as well as engineering and managerial techniques.

Administrative notice was taken of an earlier commission finding (13 PUR3d 239) in which the same holding company was authorized to acquire the common stock of two other water companies. Commission approval in that case was predicated upon the determination that the transactions would not adversely affect the public interest and that the service would be better and more efficient by coordinating the operations of the two water companies.

Sale of Excess Water

The holding company submitted evidence indicating that the annual safe yield of water from the water company's source of supply was 13 million gallons per day.

The water company's present patrons use an average of one million gallons per day. The holding company proposed to sell a portion of this excess water to neighboring communities. This would provide additional revenue and consequently diminish the need for revenue from present patrons.

Those objecting to this transaction pointed out that stress has been given to the present economic advantage afforded the communities within the water company's service area by their abundant supply of water and that the diversion of such water would diminish the area's relative desirability as a site for future industrial developments.

The commission did not believe that the proposal to divert water to near-by communities was unreasonable. It pointed out that many areas in the United States, including communities within Connecticut, suffer from water shortages. Several Connecticut communities are facing crucial situations arising from almost complete utilization of the water resources available to them. It noted that water conservation requires utilization of all available water resources and that it has

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consistently taken steps to discourage the wastage of water. In view of these facts the commission rejected the contention of the present patrons that all of the water available from the source of supply should be retained within the company's present franchise area.

Exchange of Stock

The holding company proposed to exchange three shares of its preferred stock for each share of water company stock.

Since this would constitute a transfer of authority or control of the water company, commission approval was required. The water company's current dividend rate is \$1.50 per share. The holding company proposed to pay 80 cents per share on its new preferred stock. Therefore a stockholder of the water company who has been receiving \$1.50 per share would receive a dividend of \$2.40 on the three shares of preferred stock. *Re Rockville Water & Aqueduct Co. Docket No. 9506, September 17, 1957.*



Stock Issue Approved Despite Low Offering Price And Low Debt Ratio

ALTHOUGH the Connecticut commission approved a common stock issue of 1,358,300 shares proposed by Southern New England Telephone Company, it expressed concern about the low offering price and the company's low debt ratio. The proceeds of the new issue, to be sold to stockholders at \$25 par, will be used to pay off loans secured from American Telephone and Telegraph Company for plant expansion.

A Connecticut statute prohibits the commission from compelling a company to issue stock "under terms or conditions not required by the general statutes." The statutes do not expressly require stock to be issued at a price in excess of par. Under an interpretation placed upon the statutes by the Connecticut supreme court (20 PUR3d 29), the commission has no authority to pass on the offering price of new stock issues. Only the company's directors can fix the price.

Effect of Low Offering Price

The commission did not fail, however, to point out the adverse effect which a low offering price will have on the public

interest. The prevailing market price of the company's stock during the past year and a half has ranged between \$36 and \$40. The offering price was therefore more than 30 per cent below market price and was also considerably below book value. Figuring from current dividends, purchasers of the issue will enjoy a yield of 8 per cent. The company defended the offering price as a measure necessary to insure successful marketing.

Because of the federal income tax structure, the servicing of common stock requires more than \$2 in gross revenues for each additional \$1 available for dividends. If the company is permitted to sell its shares at a price unduly below market, the commission observed, subscribers will be required to pay higher rates than would otherwise be necessary. On the other hand, offering a lesser number of shares at a higher price to raise the same amount of capital would necessarily inure to the benefit of the ratepayers.

The commission noted that offering the proposed issue at \$30 a share, which the company considered reasonable only a year ago, would provide additional funds of nearly \$7 million for the same annual

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cost that would be required for the servicing of the same number of shares at the proposed price of \$25.

It is apparent, said the commission, that the public interest would best be served if adequate statutory safeguards were provided for regulatory authority over the price of stock issued by all utilities.

Low Debt Ratio

Because of large advances of money by the American Company, Southern's debt

ratio was about 46 per cent. The proposed issue of stock would reduce this ratio to about 35 per cent. The commission noted that bonds could be sold at about 4.8 per cent with a resulting cost of capital of about 2.4 per cent, after giving effect to tax savings by reason of the deductibility of bond interest. Since dividends on stock are not deductible for tax purposes, the equity capital to be secured from the proposed issue will cost 8 per cent. *Re Southern New England Teleph. Co. Docket No. 9553, October 11, 1957.*



Full Restitution with Interest Allowed Following Invalidation of Minimum Wellhead Gas Price

THE federal court of appeals ruled that Natural Gas Pipeline Company of America, which had involuntarily paid a minimum price invalidly fixed by the Oklahoma commission for gas purchased from producers, was entitled to restitution of the difference between that price and a lower contract price, together with interest from the time the commission order was declared invalid by the United States Supreme Court.

No deduction was permitted to be made for increased royalties paid by the producer under the higher minimum price nor for increased gross production taxes. The lower court judgment had reduced the amount due by the latter two items and had allowed interest only from the time of its judgment.

The Oklahoma commission had fixed a price of 9.8262 cents per thousand cubic feet at the wellhead. The contract price then subsisting between the parties was 6.253 cents. The Supreme Court held the commission's order invalid for lack of jurisdiction.

Natural protested payments under the order. It admitted, however, that it was

motivated not to supersede the state commission's order by its desire to seek from the Federal Power Commission increases reflecting the prices paid under the order and thus to pass on the increases rather than bear the entire risk itself. D. D. Harrington, the producer-seller, contended that Natural's motive in this respect converted its payments of the increased price into a "calculated business maneuver" and deprived the payments of their involuntary nature. The court disagreed with this contention. If anything, the choice between bearing the entire risk of loss and trying to pass it on increased the business duress on Natural to make payments in accordance with the order, the court asserted.

No Accord and Satisfaction

Harrington urged that an accord and satisfaction were effected by its predecessor's acceptance of Natural's checks containing notations that acceptance of the checks would constitute full payment and settlement.

The court noted that an accord and satisfaction can result only from an

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agreement. Clearly Natural had made no offer of any agreement that would preclude it from seeking restitution, where each of its checks had been accompanied

by a letter specifically protesting payment of the higher minimum price. *Natural Gas Pipeline Co. of America v. Harrington*, 246 F2d 915.



Gas Company Authorized to Retain Portion of Refund from Wholesale Supplier

THE Missouri commission authorized a gas company to retain a portion of a refund it had received from its supplier as a result of a rate readjustment by the Federal Power Commission, and to pass on the remainder to customers according to the directives in the order.

The company had relied upon two grounds to support its proposal that a portion of this fund be retained by it without consideration for interest on the refundable amounts. First, unlike other companies in the state, the supplier had disputed its liability to the company for a refund in any amount. The fact that there was anything to distribute was due to the effort made and the expense incurred by the company in successfully resisting the supplier's claim.

Second, the company had not enjoyed a fair rate of return during the refund period. Its customers had enjoyed gas service at rates substantially lower than they would necessarily have been to produce compensatory revenues.

As to the first proposition, the commission agreed that the company had been required to expend effort and incur expense to preserve and protect the fund. Otherwise there would not have been anything to distribute.

As to the second proposition, the evidence showed that the company had sustained an over-all net operating loss during the period when the supplier's overcharges were being imposed. It was obvious to the commission that the beneficiaries of the proposed refund enjoyed gas service during the period involved at rates which were very much lower than they would have been if the company had been fully compensated for the service.

The company's proposal as to the disposition of the funds on hand appeared reasonable to the commission. Refund of the remainder was ordered to be made on the basis of the respective volumes of gas purchased by the company's customers in that period. *Re Central West Utility Co. Case No. 12,318, October 9, 1957.*



Unclaimed Refunds Credited to Gas Purchased Cost Account

THE Missouri commission authorized the Missouri Natural Gas Company to credit to its purchased gas cost account during the current year the unclaimed portion of refunds from a wholesale company. As suggested by the company, a condition was imposed whereby the company would publish in its service area a

list of the remaining persons entitled to refunds and would stand ready to pay all proven claims made within a period of six months.

Of a total fund of approximately \$109,000 received from its supplier, the company had refunded to its customers all but \$4,438.95. The cost of the refund-

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ing program, sustained by the company, amounted to \$3,800. Checks representing in aggregate the remaining portion of the fund had been mailed but were returned. The commission recognized the practical impossibility of locating, after a period

of several years, all persons who have been residents of a given territory. However, under the method prescribed, a number of legitimate claims might yet be paid. *Re Missouri Nat. Gas Co. Case No. 13,739, October 16, 1957.*

Other Recent Rulings

General Mortgage Bonds. The New York commission authorized Niagara Mohawk Power Corporation to issue \$50 million principal amount of general mortgage bonds to finance an extensive construction program and plant expansion, where it would enable the company to avail itself of the lowest cost of money without creating an unbalanced capital structure. *Re Niagara Mohawk Power Corp. Case 18507, August 27, 1957.*

Bond Issue with Call Limitation. The New York commission authorized Consolidated Edison Company of New York, Inc., to offer at competitive bidding \$60 million principal amount of first and refunding mortgage bonds with a 5-year limitation against redemption with lower-cost funds, in order to provide money to pay off short-term bank debt incurred for construction expenditures, and to meet further construction costs. *Re Consolidated Edison Co. of New York, Inc. Case 18543, September 27, 1957.*

Preferred Stock Issue Approved. An electric company, requiring funds for the payment of short-term bank debt, obtained permission from the New York commission to offer convertible, cumulative, preferred stock to common stockholders (with any unsubscribed shares to be sold to underwriters) on a showing that the issue was best suited to the present market and that it would result in a

reduction of the debt ratio from 55.5 to 53.3 per cent. *Re Rockland Light & Power Co. Case 18542, October 7, 1957.*

Water Company Return. The New Jersey commission considered a return of 6 per cent on a water company's book cost rate base reasonable. *Re Hamilton Square Water Co. Docket No. 10113, September 11, 1957.*

Rate Increase without Hearing. The Georgia commission granted a natural gas company a rate increase without hearing where the increase would provide a return of only 4.83 per cent and the Tennessee commission had held a complete hearing and had approved a substantial rate increase. *Re Chattanooga Gas Co. File No. 19573, September 6, 1957.*

Management Judgment Recognized. In refusing to modify rulings in a recent rate proceeding involving Pennsylvania Gas Company, the Pennsylvania commission observed that for it to adjust the cost of manufactured gas purchased by the company would be to substitute the commission's judgment for that of management with regard to a contractual arrangement made at arm's length and in good faith to provide an adequate gas supply. *City of Erie et al. v. Pennsylvania Gas Co. C. 16590, C. 16601, September 3, 1957.*

No Unjust Discrimination. The Penn-

PUBLIC UTILITIES FORTNIGHTLY

sylvania commission held that metered customers of a water company were not being unjustly discriminated against due to the company's lack of a public fire protection service rate and the fact that the company was not charging for such protection where, if a public fire rate were instituted, the revenues from such service, when added to over-all revenues, would still not produce an excessive return. *Sheffield Water Co. Customers v. Sheffield Water Co. C. 16703, September 3, 1957.*

Rates Rise with Supply Cost. Without making rate base calculations, the Pennsylvania commission authorized several gas companies to increase rates to consumers sufficiently to offset increased supply costs, provided, however, that any refunds that might be forthcoming from the suppliers after final federal commission action on their charges would be passed on to consumers. *Pennsylvania Pub. Utility Commission v. Manufacturers Light & Heat Co. Complaint Docket No. 16719, September 3, 1957; Pennsylvania Pub. Utility Commission v. Peoples Nat. Gas Co. Complaint Docket No. C. 16794, September 3, 1957; Pennsylvania Pub. Utility Commission v. North Penn Gas Co. Complaint Docket No. 16795, September 3, 1957; Pennsylvania Pub. Utility Commission v. S. H. Elder & Co. Complaint Docket No. 16803, September 3, 1957; Pennsylvania Pub. Utility Commission v. Equitable Gas Co. Complaint Docket No. 16804, September 3, 1957.*

Annual Depreciation. The Pennsylvania commission held that a ratio derived from determining an annual depreciation amount related to depreciable spot price reproduction cost is unacceptable where a

determination of annual depreciation can be made directly with respect to original cost. *Pennsylvania Pub. Utility Commission v. Waynesburg Water Co. C. 16702, C. 16690, September 24, 1957.*

REA Loan to Telephone Company. The Illinois commission authorized a telephone company to borrow \$1.6 million from the Rural Electrification Administration on mortgage notes payable over a period of thirty-five years at 2 per cent interest, in order to obtain funds for additions and improvements and to reimburse the company treasury for funds expended for construction. *Re Western Illinois Teleph. Co. No. 44379, September 18, 1957.*

Zoning for Municipal Plants. The New Jersey superior court held that the construction of a water tank by a municipal water plant is subject to the zoning ordinances of the community in which it furnishes service since the distribution of water by a municipality to its own inhabitants as well as those of adjoining communities for domestic and commercial uses is a private or proprietary function which is subject to the rules applicable to private corporations. *Township of Washington in the County of Bergen, etc., et al. v. Village of Ridgewood in the County of Bergen, etc., et al. 134 A2d 345.*

Additional Carrier Authority. The Pennsylvania superior court sustained a commission order granting additional authority to a motor carrier upon favorable testimony by customer witnesses and upon a showing that existing certificate holders were not furnishing adequate service. *Furst et al. v. Pennsylvania Pub. Utility Commission et al. 134 A2d 435.*

DELTA-STAR PMB-40

Braidless Single Side-Break Switch develops high pressure contacts with exceptional ease of operation

★ PMB-40 Switch operates with exceptional ease—
with high pressure swivel joint and low-friction swivel terminals.
High-pressure joint is directly on the center line of
the rotating terminal.

★ Entering or withdrawing
the blade from high-pressure contacts is
smooth and easy—with toggle and
knee-break action.

★ Factory sealed stainless
steel ball bearings on rotating insulator
require no lubrication for the life
of the switch.

PMB-40 Single Side-Break Switch blade contacts are patterned after Delta-Star's famous MK-40 vertical break switch. They feature hard drawn copper contact shoes with silver inlays. Non-current-carrying beryllium copper leaf springs apply pressure; large deflections assure maximum contact pressure over years of wear.

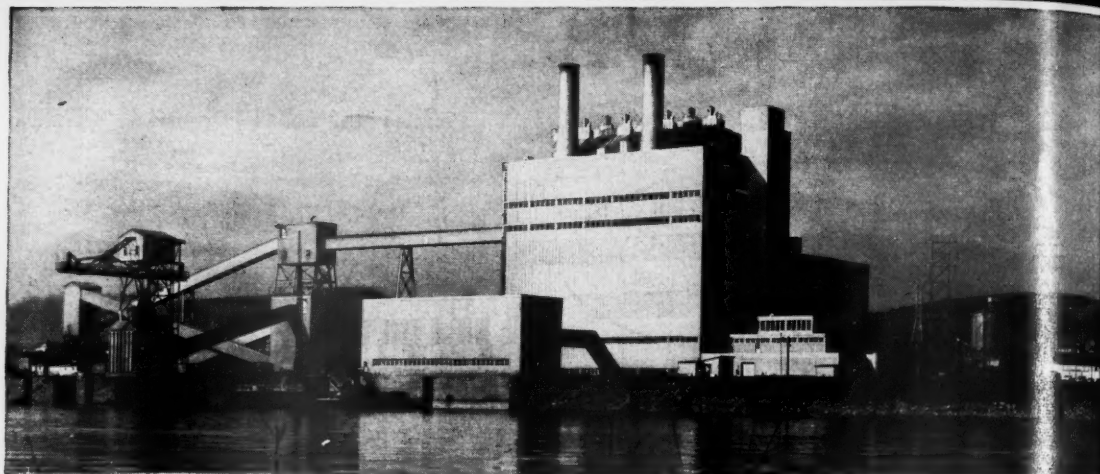
The PMB-40 Side-Break Switch is available in voltage ratings from 7.2 kv to 161 kv and current ratings from 400 to 1200 amperes.

Write for PMB-40 Publication No. 5604—or check with your Delta-Star representative — *Delta-Star Electric Division, H. K. Porter Company, Inc., Chicago 12, Illinois, District Offices in principal cities.*

H. K. PORTER COMPANY, INC.

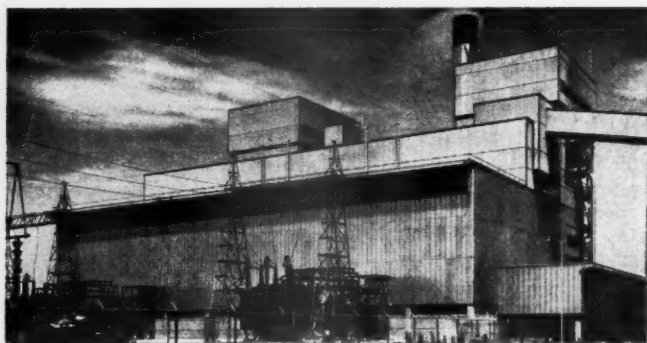
DELTA-STAR ELECTRIC DIVISION

Porter Divisions: Cleveland, Connors Steel, Delta-Star Electric, Henry Disston, Leschen Wire Rope, Quaker Rubber, Refractories, Riverside-Alloy Metal, Vulcan Crucible Steel, W-S Fittings, H. K. Porter Company (Canada) Ltd.



Why fine new power plants everywhere have Q-Panel Walls

Builders of new power plants in all parts of the country have specified Q-Panel walls for the following very good reasons: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12" masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below and write for literature.



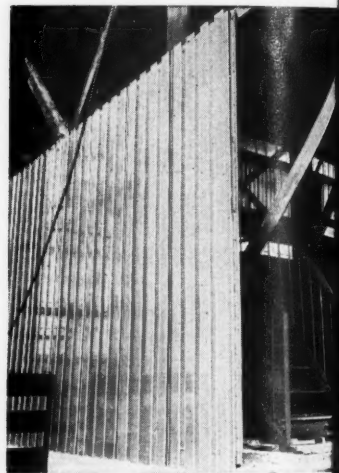
Robertson Q-Panels

H. H. Robertson Company

2424 FARMERS BANK BLDG. • PITTSBURGH 22, PA.

Offices in Principal Cities

Q-Panel walls grace the new Pirrama Plant (above) near Pittsburgh. It was designed by Duquesne Light Company's Engineering and Construction Department. The Duquesne Corporation was General Contractor.



Q-Panel walls (above) go up quickly in any weather because they are dry and hung in place, not piled up.

More than 32,000 sq. ft. of Q-Panels were used to enclose the impressive Hawthorn Electric Station (left) of the Kansas City, Missouri, Power and Light Company. Ebasco Services, Inc., designed and built the plant.



Please send a free copy of your Q-Panel catalog.

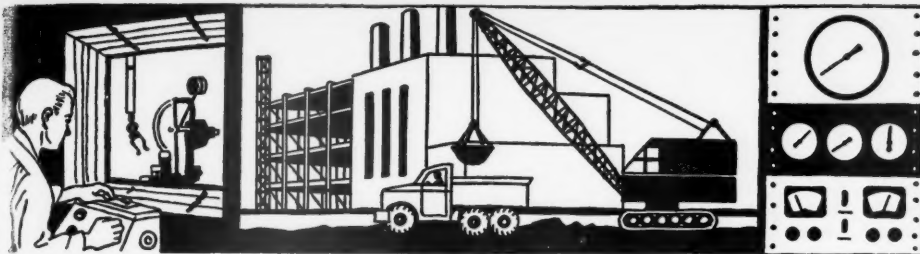
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PUBLIC UTILITIES FORTNIGHTLY—NOVEMBER 1958



Industrial Progress

General Telephone System Has \$200,000,000 Program

GENERAL Telephone System will invest \$200,000,000 in the coming year for expansion of facilities throughout the system," Donald C. Power, president of General Telephone, said recently in dedicating the manufacturing and research facilities of Automatic Electric Company at suburban Northlake (Chicago), Illinois.

"Communications is the key to progress in this era of growth and expansion. Every working day, in the year, General Telephone will add a million dollars a day in the forward progress of our company." In 1958, General Telephone will add gross revenues of nearly \$500,000,000," Mr. Power said. "Our total investment has already passed the billion dollar figure in 1957. Within five years we plan to more than double this figure."

Before several hundred invited business and industry guests, Mr. Power formally dedicated Automatic Electric's new plant by dialing its phone number which set off electric impulses which took the place of the usual ribbon cutting.

Also taking part in the dedication ceremonies were Leslie H. Warner, executive vice-president of General Telephone System in charge of its manufacturing units, and Herbert F. Power, president of Automatic Electric.

Southern Counties Gas To Erect New Headquarters Building

CONSTRUCTION in downtown Angeles of a 13-story headquarters building by Southern Counties Gas Co. was announced recently by Guy W. Wadsworth, Jr., president and general manager.

The building, expected to cost \$2,000,000, will go up on a 55-by-150-foot lot on the southeast corner of

Flower and Eighth Sts. The property adjoins existing buildings of Southern California Gas Co., which will use the ground floor of the new structure as display and customer contact area.

Also to be housed in the new building will be Pacific Lighting Gas Supply Co., another Southern Counties affiliate; and local executive offices of the Pacific Lighting Corp., parent organization of the three Southland utilities. In addition more than 30,000 square feet of space will be rented, Mr. Wadsworth said.

The building is slated for occupancy by July, 1959.

New Improved Line of Aluminum Power Connectors Now Available

THE Delta-Star Electric Division of the H. K. Porter Company (Delaware), recently introduced a complete line of Aluminum Power Connectors

for: tubing to tubing, cable to cable, tubing to cable or terminal lug connections, etc.

This line of connectors is designed for easy installation, high electrical conductivity, and positive mechanical connection thus insuring continuous efficient service over a long period of time.

Some of the features stated for these new connectors are: Strong positive gripping action; positive wrapping action assures a low resistance joint not subject to loosening due to vibration or strain; designed to carry full rated current of the conductors with temperature rise of connector not exceeding that of conductor; edges and ends of connectors are rounded to eliminate abrasion; recessed bolt heads for single-wrench assembly and disassembly; meet NEMA standards in every respect.

(Continued on page 26)

Common and Preferred Dividend Notice

October 30, 1957

The Board of Directors of the Company has declared the following quarterly dividends, all payable on December 1, 1957, to stockholders of record at close of business, November 8, 1957:

<u>Security</u>	<u>Amount per Share</u>
Preferred Stock, 5.50% First Preferred Series	\$1.37½
Preferred Stock, 5.85% Series	\$1.46¼
Preferred Stock, 5.00% Series	\$1.25
Preferred Stock, 4.75% Convertible Series	\$1.18¾
Preferred Stock, 4.50% Convertible Series	\$1.12½
Preferred Stock, 5.75% Subordinate Convertible Series	\$1.43¾
Common Stock	\$0.35

W. J. Stangor
Secretary

TEXAS EASTERN  *Transmission Corporation*

SHREVEPORT, LOUISIANA

For more details on this new line write: Delta-Star Electric Division, H. K. Porter Company, Inc., 2437 Fulton Street, Chicago 12, Illinois.

New Sangamo Watthour Meter Guarantee

SANGAMO Electric Company of Springfield, Illinois has announced that all singlephase and polyphase watthour meters, and the watthour meter section of all combination metering instruments are now guaranteed for life. This guarantee includes the materials and workmanship on

the meters, and a statement that the ball and jewel bearing system will never need relubrication, inspection or replacement.

Meters covered by the guarantee contain a cobalt ball and sapphire jewel bearing system which has been treated with Molykote® Microsize, a most highly purified molybdenum disulphide. These meters include all singlephase watthour meters with serial numbers above 21,900,000, all polyphase meters with serial numbers above 18,250,000 and all Lincoln combinations with serial numbers above 823,000.

Jenks Elected President International Harvester

FRANK W. JENKS, formerly executive vice president, International Harvester Company, has been elected president of the Company, according to an announcement by John L. Caffrey, chairman of the board, chief executive officer.

Mr. Jenks succeeds Peter Moulder, who retired as president who also resigned from the Board of Directors.

Southern California Edison Spend \$135,000,000 in 1959

IN the three-year period ending 1959, Southern California Edison Company expects to increase its electric plant investment by \$1 1/3 billion, President Harold Quinton told Los Angeles Society of Security Analysts recently.

Translating the effects of growth on company operations, Quinton said that Edison's constant expenditures for 1957 amount to about \$135 million, large in the company's history. A similar amount is being forecast for 1958, he stated.

At the end of September, Edison operating capacity was 2,969,000 watts, compared with 1,731,300 watts five years ago. The company has 800,000 additional kilowatt capacity under construction scheduled for completion in 1958, 1959, and 325,000 kilowatts planned for 1960-61, Mr. Quinton reported.

VEPCO Receives Oscar Award For Annual Report

ERWIN H. WILL, president of Virginia Electric and Power Company, received a bronze "Oscar of industry" award for its 1956 Annual Report to Shareholders. The report was judged as the best annual report among the largest electric light and power companies in the United States.

The award was made in the annual report survey conducted by *Financial World* magazine. During the past 10 years, Vepco has won three bronze Oscars and one silver Oscar.

Mr. Will was presented the award at the annual awards banquet, Grand Ballroom, Hotel Statler in New York City. The presentation was made by Richard J. Anderson, editor and publisher of *Financial World*.

Cabell Eanes, Inc., Richmond, Va., advertising agency, assisted in preparation of the report which

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Debentures. The offer is made only by the Prospectus.

\$250,000,000

American Telephone and Telegraph Company

Twenty-Six Year 5% Debentures

Dated November 1, 1957

Due November 1, 1983

Interest payable May 1 and November 1 in New York City

Price 101.461% and Accrued Interest

Copies of the Prospectus may be obtained from only such of the undersigned as may legally offer these Debentures in compliance with the securities laws of the respective States.

MORGAN STANLEY & CO.

BLYTH & CO., INC.	GLORE, FORGAN & CO.	GOLDMAN, SACHS & CO.
HARRIMAN RIPLEY & CO. Incorporated	KIDDER, PEABODY & CO.	LAZARD FRERES & CO.
LEHMAN BROTHERS		SMITH, BARNEY & CO.
STONE & WEBSTER SECURITIES CORPORATION		WHITE, WELD & CO.
A. C. ALLYN AND COMPANY Incorporated	A. G. BECKER & CO. Incorporated	DREXEL & CO.
HEMPHILL, NOYES & CO.	HORNBLOWER & WEEKS	W. E. HUTTON & CO.
LEE HIGGINSON CORPORATION		F. S. MOSELEY & CO.

PAINE, WEBBER, JACKSON & CURTIS

October 30, 1957.

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to Ohio Edison Company and
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Automatic Electric Company,
dedicated its new 1,520,000
foot plant at suburban North-
recently, was organized in Chi-
in 1901 as the successor com-
to the Strowger Automatic Tele-
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the Strowger Company, originator
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the first dial telephones were in-
stalled in 1896 in Albion, New York,
and Milwaukee, Wisconsin.

During the closing years of the 19th
century and the opening of the 20th,
the independent phone companies
throughout the country welcomed the
new automatic switching innovation.

In 1918, the Bell System placed its
first order with Automatic Electric
and began adopting automatic switch-
ing for its exchanges.

Foreign use of the Strowger auto-
matic equipment was initiated in Ber-
lin at the turn of the century. In-
stallations followed in other European
countries, Canada, Cuba, Australia,
South America, South Africa, and the
Far East.

The first automatic paystations with
coin-collecting facilities were installed
in 1905 in Fall River, Massachusetts.

From the beginning of automatic
telephony, the business world recog-
nized the need for improvement in
communications inside offices, stores,
and factories. Probably the first
private automatic exchange system
was installed at Sears, Roebuck and
Company in Chicago in 1905.

Long distance dialing was first
tested in 1907 between Los Angeles
and San Diego, California, using
Automatic Electric equipment.

Direct distance dialing, which en-

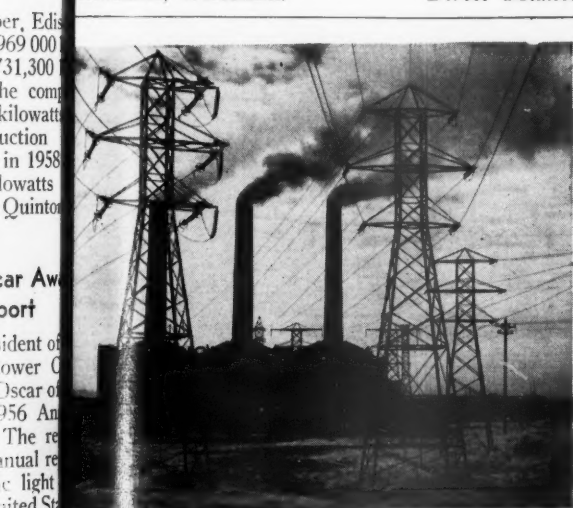
ables the telephone user to dial his
own long distance call, was preceded
as long ago as 1915 by an operator-
dialing network engineered by Auto-
matic Electric between Thompson
Corners, Cleveland, Canton and
Elyria, Ohio.

Other Automatic Electric con-
tributions to the progress of tele-
phonics are unattended automatic ex-
changes, call indicator systems, hand-
set telephones, automatic toll boards
and automatic toll ticketing for
nationwide distance dialing, loud-
speaking telephones, and automatic
teletypewriter switching.

Automatic Electric also is a pioneer
in the field of automation and electrical
control systems. The base of much of
present day automation comes from
the invention and development of
principles used by the dial telephone
system.

Automatic Electric produces tele-
phone type relays, stepping switches,
remote control systems, and many
specialized devices used in computers,
guided missiles, aircraft control sys-
tems, radio and television, photoelec-
tric measurement and control systems
and many others.

(Continued on page 28)



American Appraisals of reproduction cost may affect rates

An American Appraisal report of the cost of repro-
duction provides convincing evidence in the prepa-
ration of an appeal for adjusting rates to provide
a more equitable return.

The AMERICAN APPRAISAL Company

Leader in Property Valuation
Home Office: Milwaukee 1, Wisconsin

More for your Money in

MORYSVILLE



New Line Construction Body for single or dual wheel chassis from $\frac{1}{2}$ to 2 tons.
Length from 8' to 14' (CA's from 48" to 120"). Sliding roof for derrick;
ample stowage space inside and out. Many plus features at no extra cost.

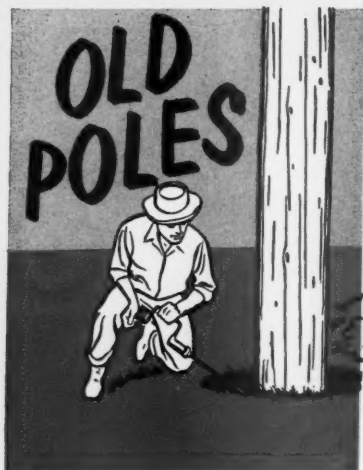
- 14 and 16 ga. Body Steel (14 ga. throughout for models rated 1 ton up—19 ga. doors).
- $\frac{1}{8}$ " Diamond Floor Plate.
- 5" Structural Channel Under-structure.
- Electric Welded throughout.
- Telescoping Roof with weather tight, easy sliding action.
- One piece Smooth Welded Draw-ers and Compartments.
- Vertical or Horizontal Flush Doors with recessed, spring loaded latches at no extra charge.
- Concealed metal Winch Box.
- Curbside Access to tools and equipment used most frequently.
- Vertical Compartments for climb-ers, lines and linemen's tools.
- Large, inside ventilated, Rubber Goods Compartment.
- Two piece Front Window in crew compartment.
- Bit and Chisel Drawer; Trough for Drills, Tamps, Rods, etc.
- Fendix Undercoating at no extra charge.

IMMEDIATE DELIVERY • Distributors in Principal Cities

Distributors for
**HALL
DERRICKS**

MORYSVILLE
Body Works INC.

813 SOUTH READING AVE., BOYERTOWN, PENNA.



can be a serious risk!

- Standing poles older than 18 to 20 years require systematic inspection at the groundline area . . . and treatment where necessary.
- Competent inspection and proper treatment add 20 to 30 years to the useful life of older standing poles.
- Additionally, inspection will furnish adequate reports so that replacements where necessary can be effected before the risk of pole failure becomes dangerous.
- OSMOSE has the experience and the trained personnel to put this inspection and treatment plan into operation quickly, effectively and economically.
- A word to your pole service men (who are familiar with this plan) should answer any questions in your mind.

OSMOSE

OSMOSE WOOD PRESERVING CO.
OF AMERICA, INC.
978 ELLICOTT ST. BUFFALO, N. Y.
Producers of a complete line of
wood preservatives
for: MINES • RAILROADS
UTILITIES • FARM and HOME

INDUSTRIAL PROGRESS—(Continued)

Lincoln Tel. & Tel. Building Microwave Radio Relay System

THE Lincoln (Nebr.) Telephone and Telegraph Company has started construction of its first microwave radio relay system for message service. It will connect the Lincoln, Wahoo and David City exchanges and will replace present wire connections for long distance communication between these points.

The system will be equipped initially for 44 circuits and will have a capacity of 120 circuits. It will cover 57 airline miles.

A 260-foot guyed antenna tower will be placed near Brainard with 120 and 75-foot guyed towers located adjacent to new telephone buildings at David City and Wahoo. The Lincoln antenna will be installed on a 210-foot tower now located on the telephone building there.

The company has two microwave systems in operation at present for reception of network television for local TV stations at Lincoln and Hastings.

The new system will be placed in operation about the middle of next year when Wahoo and David City will be converted to dial operation. Direct distance dialing to some 48 exchanges in southeast Nebraska will also be inaugurated at Wahoo and David City. The Beatrice exchange now has such service.

"Preferred Design" Power Transformers Described in New Booklet

GENERAL Electric's "Preferred Design" power transformers are described in a new 40-page booklet, GEA-6604, obtainable by writing the General Electric Company, Schenectady 5, N. Y.

Performance data, prices, outline drawings, dimensions and weights are given for typical ratings ranging from 5,000 to 50,000 KVA, 69 to 138 KV, with or without load tap changing.

Preferred Design transformers are not limited to any set ratings. An electronic data processing machine helps determine the best combination of design variables for any application. Mechanical features and accessories are uniform—those a nationwide survey showed to have an indicated average acceptance of 86% of power transformer users.

Drawings approved for construction are available with every PD proposal, enabling design and construction of substations to start as soon as the PD order is placed. Delivery time for PD units is six to 12 weeks less

than for "specials" of equivalent ing.

IBM Announces Powerful Office Machine

THE Data Processing Division International Business Machines Corporation has announced the 705 one of the most powerful electronic systems on the market for the processing of business data. It is in addition to the IBM 700-series large-scale electronic data processing systems now at work in score business, scientific, and government installations.

One of the outstanding features of the new system is a completely transistorized magnetic tape unit with a put-output rate fast enough to read or write the equivalent of a full-length novel once every fifteen seconds. The ultra-high speed tape unit, the 729 Model 3, can read or write business information at the rate of 60 characters per second, automatically checking the information for validity and readability at the same time. Increasing tape density, the Model 3 is able to store up to three times as much information on each tape.

The system also utilizes the 767 Data Synchronizer which controls magnetic tape input and output so the 705-III can read problem data, compute, and write answers simultaneously.

In addition to the new tape unit, the 705-III features several other advances which permit the system to handle large masses of data more rapidly and in a more versatile fashion than ever before. Calculation on many applications will be reduced by as much as 40%.

A 40,000 position magnetic core memory is provided on the 705-III. This high speed memory can be enlarged to 80,000 positions by the addition of an additional core storage unit. Increased capacity enables the system to process many applications directly in core memory without having to resort to other means of storage.

The new 705-III system will cost for \$35,000 a month and up, or for \$1,925,000 and up, depending on the amount of auxiliary equipment used.

Appalachian Electric Power For Expansion in Ohio Valley

APPALACHIAN Electric Power Company announced recently that it is acquiring about 1,450 acres of land along the Ohio river at Apple Grove, West Virginia, for the site of a future steam-electric generating plant

INDUSTRIAL PROGRESS—

(continued)

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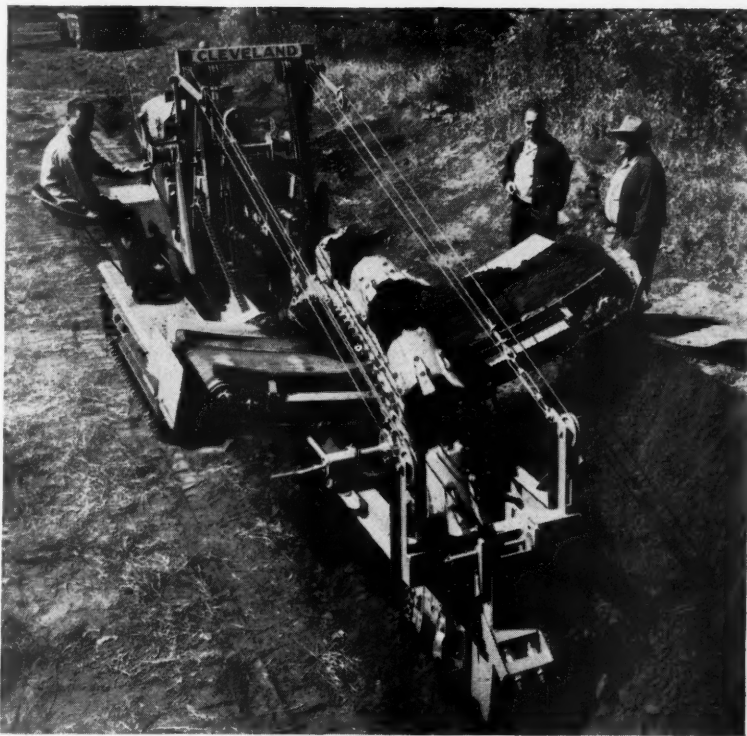
New Plastic Telephone Cable Splicing Method Demonstrated

A new method of splicing plastic insulated telephone cable was demonstrated to industry engineers at the Hazewood Telephone Company, Hazewood, Pennsylvania, recently. The splicing method was developed by Minnesota Mining and Manufacturing Company in co-operation with Rural Electrification Administra-

The new method utilizes a splicing sleeve in which the plastic insulated conductors are inserted. The sleeve is compressed with a special tool. This results in a stable, low resistance connection. At the same time a moisture of insulating compound, within the sleeve, surrounds the conductor joint. Engineers say the method promises to reduce the cost of splicing plastic insulated cables. The present method is to strip the conductor insulation, twist the conductors, solder the conductor joint in place over the joint an insulating compound filled with water proofing compound.

Splicing crews of the Mullen Construction Company handled the demonstration. Telephone industry engineers and trade press representatives were among interested parties attending the demonstration.

digs 'em and fills 'em with Clevelands



This gas company crew is putting a new Cleveland 110 through its paces. Like so many others who know Cleveland's fitness for utility distribution work, this Indiana company has standardized on Clevelands for more than 20 years.

Mains of the same Indiana company are backfilled—and simultaneously compacted—by the one-man-operated Cleveland 80W. It lays pipe, pulls crossings and does other side crane work, too.



THE CLEVELAND TRENCHER CO.

20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO



Everywhere

1958 Dodge Trucks Feature More Power and Unique Styling

INCREASED POWER, unique styling, greater load capacities, added driver comfort, larger brakes, and new automatic transmission are among the outstanding features of 1958 Dodge trucks.

M. C. Patterson, president of Dodge, said the new "L" Series line offers the right model for virtually every trucking need. Specific hauling requirements of individual truck owners are met by the greatest variety of transmissions, axles, springs, frames, and other components in Dodge history.

Many features that improve driver comfort and increase economy, safety, and dependability have been built into the new models, Mr. Patterson said.

The new truck line offers engines with 10 different horsepower ratings ranging from 113 to 234. Maximum gross vehicle weights on the 1958 models range from 5,100 to 46,000 pounds and gross combination weights up to 65,000 pounds.

Light and medium-duty trucks are stylishly different in appearance from heavy-duty models. This has been accomplished by introducing two new grille designs. Available for a distinctive touch is a bright-metal chrome trim package.

A full-width alligator hood, heavy-duty bumpers, and twin headlights—which provide greater visibility for night driving—are among changes in appearance.

Cabs have been made more comfortable and more attractive. Doors open 15 per cent wider than on previous models to provide easy entrance and exit.

A new transistor radio has been suspended from the ceiling of the cab between the sun visors for better reception. Far removed from engine and road noises, it's easy to dial and convenient to service.

Push-button driving controls again are available on all low-tonnage models and the P400 forward-control model.

A new 6-speed Torqmatic transmission brings automatic shifting to medium and high-tonnage models. An outstanding feature of the Torqmatic transmission is the hill retarder, safety device that assists downhill braking to lengthen brake life.

New and more effective hydraulic brakes add increased stopping power

to medium and high-tonnage models. Power brakes again are standard or available on all Dodge trucks.

Increased road clearance on the low-tonnage trucks aids off-highway driving and is of particular value on secondary or rutted roads.

Lo-tonnage models, featuring the high-style look, are paced by the sleek weptside 100 pick-up, while high-tonnage models offer modern lines and a massiveness that emphasizes power.

The W300 Power-Wagon adds another 4-wheel drive model to Dodge's extensive line of 4-wheel drive trucks. The W300 is available in pick-up, stake, chassis and cab, and chassis and cowl models. A panel truck has been added to the existing W100 line.

A "Full-Traction" differential, offered for the rear axle of all D100 models, gives better traction on slippery surfaces. It also is available for front and rear axles of W100 models.

A new engine—the 207-horsepower "Super Power Giant 315"—is standard on the C600 cab-over-engine model. This high-powered, double-rocker-shaft V-8 engine, designed for long-term service, is available on all other medium-tonnage models except the P400 forward-control chassis.

Gross combination weights have been increased as much as 10,000 pounds on tandem models.

B & W Awarded "Oscar" For 1956 Annual Report

FOR THE SECOND straight year, The Babcock & Wilcox Company has been awarded a bronze "Oscar of Industry" for having the best annual report issued by firms in the industrial equipment field. The award was presented to M. Nielsen, Babcock & Wilcox president, by Richard J. Anderson, editor and publisher of *Financial World* magazine, which sponsored the competition, at the annual Awards banquet held in New York City.

More than 5,000 reports were entered in this year's competition. The award to B&W came after the screening of 1,874 finalists for ratings in the various industrial categories.

B&W's award-winning report for the year 1956 was a 32-page magazine-format publication printed in two colors. It included details of the company's financial operations for the fiscal year, with comparative figures for the previous nine years. Numerous photographs were presented to illustrate B&W activities, products and plants, together with separate discussions on the operations and prospects for the various divisions.

Whitney Blake Catalog

WHITNEY Blake Company, Haven 14, Connecticut, manufacturer of telephone wire, cord and has recently released a twenty-page loose leaf catalog printed in colors. This catalog provides a complete listing of all Whitney Blake phone wire products including several new items that have been added to the line in the past two years. The catalog is free and requests should be addressed to H. L. Gobeille, advertising and sales promotion manager, Whitney Blake Company, Haven 14, Connecticut.

Third Atom Fair Held In New York

THE trade fair of the atomic industry was held at the New York Coliseum October 28th to November 1st. It attracted an audience of about 15,000 from the technical and management areas of nuclear industry. It was the first nuclear trade show to be held in New York. The Products of more than 135 organizations active in development of atomic energy for peaceful purposes were on display. Highlight of the show was an operating low-powered nuclear reactor, the first ever to be installed in New York City. Another Atom Fair feature which attracted attention was an operating, 3-dimensional television system used to supervise the remote control handling of hazardous substances.

Running concurrently with the Atom Fair was the annual conference of the Atomic Industrial Forum of the American Nuclear Society. Forum officials estimate that more than a half million dollars was spent by exhibitors, reflecting the growth of industrial interest in this field since the passage of the Atomic Energy Act of 1954 and subsequent amendments. From the standpoint of attendance, Atom Fair 1957 was approximately twice the size of the first Atom Fair held in 1955, in Washington, D. C.

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EDWARD V. DIERCKS of New York has moved to Anderson Electric Corporation in Birmingham, Alabama, as assistant to the general manager of the corporation, it is announced by Vice President C. Bitzer.

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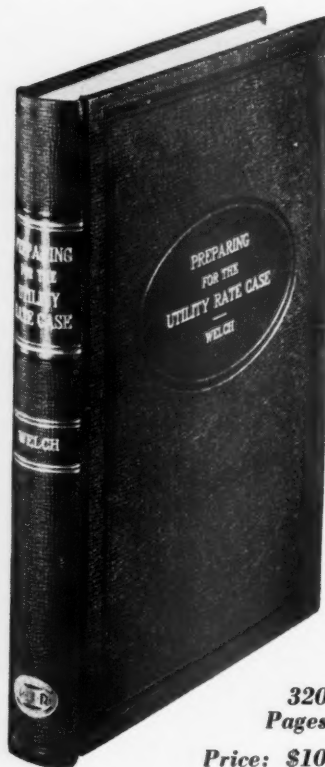
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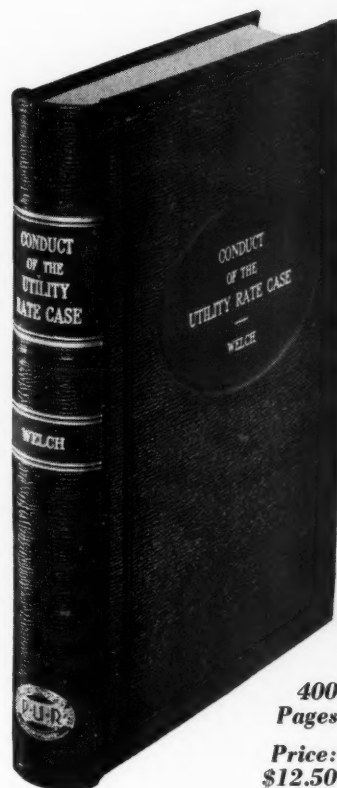
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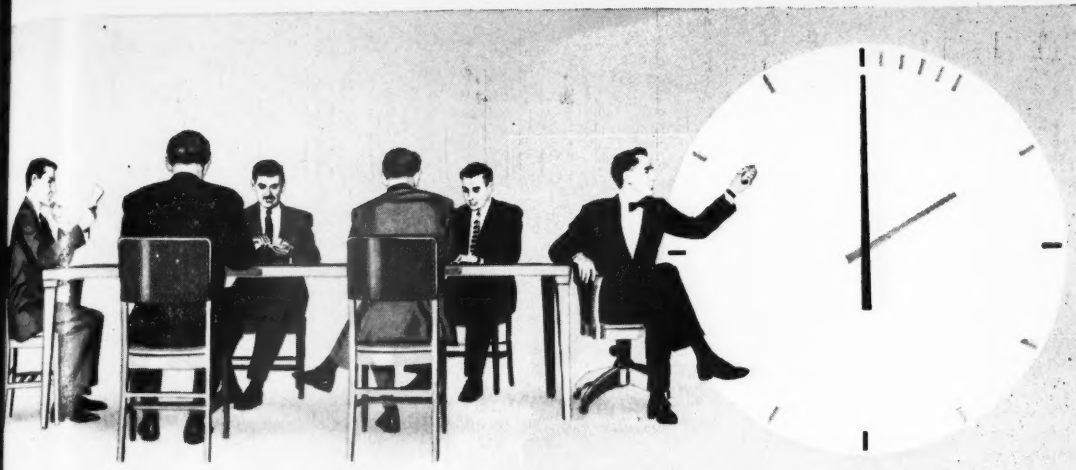
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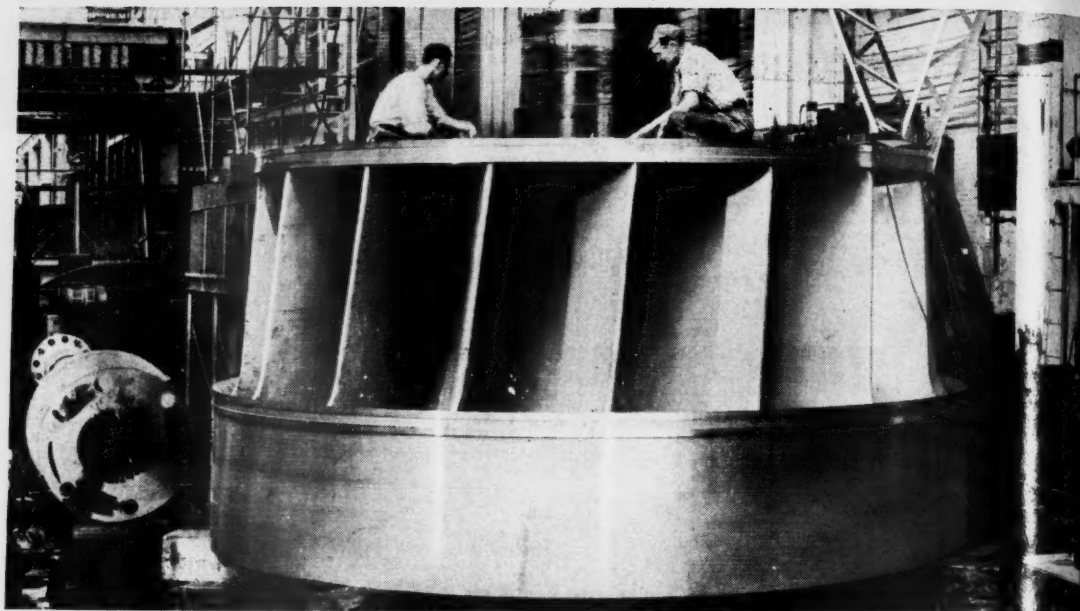
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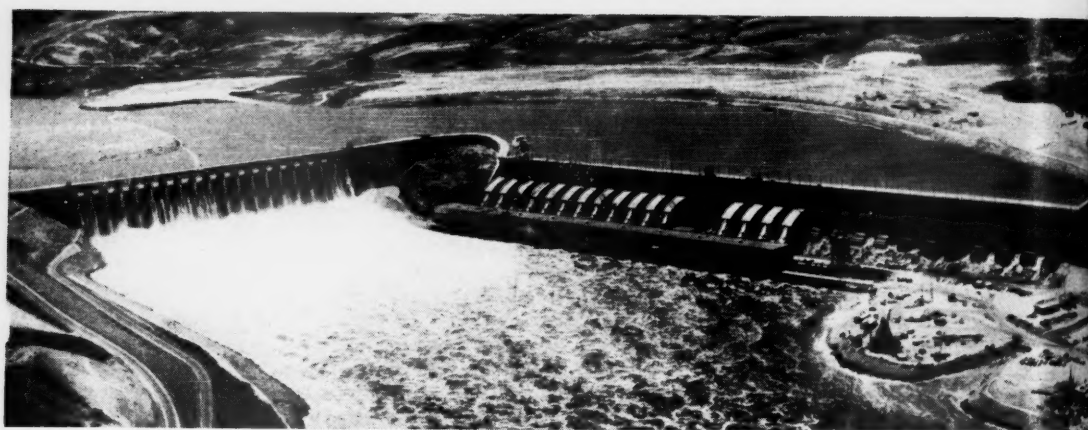
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